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Kates, Reat, Marwick & Co.
Impact of regional
growth on the Hamilton
transportation system

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DISCUSSION PAPER

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THE IMPACT OF REGIONAL GROWTH
ON THE HAMILTON TRANSPORTATION SYSTEM

Kates, Peat, Marwick & Co.

November, 1972

THE IMPACT OF REGIONAL GROWTH ON THE HAMILTON TRANSPORTATION SYSTEM

INTRODUCTION

The purpose of this Discussion Paper is to outline the potential requirements in Hamilton for transportation as affected by the growth of the region surrounding the City. The transportation implications will be evaluated in more detail in the remainder of the Strategy Study.

THE FIVE SCALES OF INTERACTION

In devising a strategy for the future development of the transportation facilities to serve the City of Hamilton, five discrete scales of movement in which Hamilton plays a critical role have been identified:

- the Eastern Canadian corridor, i.e. Detroit/Windsor, London, Hamilton, Toronto, Ottawa, Montreal, Quebec City
- Southwest Ontario, in which at least four regional districts consider Hamilton to be a part: Niagara Region, Lake Erie Region, Mid-western Ontario Region and the Toronto-Centred Region
- the Hamilton/Burlington/Wentworth County urban region
- the City of Hamilton
- urban neighbourhoods within Hamilton.

APPROACH TO MEASURING THE
IMPACT OF REGIONAL GROWTH

In order to establish the demands for accessibility within the City of Hamilton, it has been found necessary to first identify the demands between Hamilton and surrounding urban areas. Therefore, given a projected population within the Hamilton/Burlington/Wentworth County urban region of one million in approximately 30 years, the objective of this analysis has been to identify alternative patterns of distributing population, jobs and services, and then testing those various concepts of distribution in terms of traffic demands on the City of Hamilton. Briefly, the approach follows the following steps:

- definition of boundaries for analysis
- projection of population and employment within the designated analysis area
- identification of "committed" plans and policies for development within the analysis area, which become the "common" future development patterns accommodating some part of the total projected population and employment
- analysis of remaining land within the analysis area in terms of its capability and suitability for urbanization, together with identification of development constraints
- identification of alternative concepts for allocating remaining population, jobs and services
- translation of these alternative population/employment allocation concepts into traffic analysis zones
- analysis of these concepts in terms of travel demand across major screenlines within the City of Hamilton
- assessment of the travel demand analysis in terms of required facilities and alternative decisions

facing the City of Hamilton to accommodate various ways in which the region may grow and demand accessibility to and from Hamilton

- development of a "strategy decision table" to indicate the impact of individual decisions on the City's future options for accommodating various patterns of regional growth.

*Transportation
or Development
Policy
Decisions?*

This approach is designed to identify the impact on Hamilton of transportation demands created by alternative distributions of people and jobs. The alternative concepts of population/employment allocation are therefore not to be interpreted as alternative land use patterns which might result. Detailed land use distributions are not required for this high level of analysis.

This approach thereby provides the Hamilton Transportation Strategy Study with the necessary regional context within which the specific options and decisions for the provision of transportation facilities within the City of Hamilton can be determined.

COMMON DEVELOPMENT

Future development which is termed "committed" has been identified as a result of a review of current plans and policies on the part of the official planning bodies within the area. The amount and location of land which is either now being developed or is most certain to be developed in the future because of existing commitments has been identified and mapped. The resulting land use pattern should not be interpreted

as a plan, however, since the development of other areas can take place concurrently with development in these committed areas. The eleven alternative concepts of population/employment allocation selected for analysis all have an area of "common" urbanization accommodating approximately two-thirds of this total population and employment projection. It is therefore the remaining one-third of the projected population (the "floating" development) and employment which may locate in any one of a number of alternative patterns over approximately the next 30 years. The common development is the sum of the existing development and committed development.

As mentioned above, the committed area may or may not develop first. As developments occur within the committed areas, it is quite possible to envisage any number of possible developments which could or could not take place throughout the region concurrently with the committed developments. For example, scattered single-family developments on ten-acre lots may continue as is occurring presently in much of the rural areas south and west of Hamilton, or alternatively, the Province could designate a site within the region for the future development of a new town and initiate land assembly as it is doing currently east of Toronto in the Cedarwood area. In either example, development in the committed areas might occur concurrently with development in alternative areas to accommodate the remaining one-third of the population.

The distinction between committed development and floating development is useful in identifying the extent to which the long-range

demand for transportation facilities within the City of Hamilton will be determined by a basically already committed urbanization pattern compared with the extent to which the City's transportation facilities will be influenced by urbanization patterns which have yet to be determined. The analysis indicates generally that, although a number of alternative patterns of population/employment distribution are possible in the long term, only one-third of this distribution is yet to be determined. Therefore, it is altogether possible that many of the current transportation issues in Hamilton which seem to be hingeing on long-term urbanization plans could be resolved with information now known.

DESCRIPTION OF THE
ALTERNATIVE POPULATION/EMPLOYMENT
ALLOCATION CONCEPTS

Once the committed urbanization areas have been identified, our objective has been to identify alternative ways in which the remaining population and employment might be distributed over a period of approximately the next 30 years. Three basic urbanization factors have been varied in our approach to identifying alternative distribution and organization patterns: residential population, manufacturing employment, service and retail employment. Variables within these three basic factors were also considered: varying residential densities; light and heavy manufacturing employment; various categories of retail and service employment. The alternative concepts are briefly described below. Maps of the concepts are contained in Appendix A.

Concept "A" - Trends

Concept "A" named the "Trends Case", combines existing development policies in the Head of the Lake area for the one million population expected by 2001. The concept provides for growth concentrated around the existing developed areas, particularly for Burlington and Saltfleet. Substantial growth in manufacturing employment is expected for both of these. It is assumed that Hamilton will maintain its dominance as a retail and service centre, though considerable growth in these sectors is expected in Burlington.

Concept "B" - Close Centres

Concept "B" is similar to the Trends Case, in that growth is concentrated around existing areas, but differs in that employment is more widely dispersed to strong and identifiable centres. Although Hamilton receives a smaller share of the regions total employment, the CBD becomes more important as a regional service centre.

Concept "C" - Remote Centres

Concept "C" envisages strong and identifiable centres as "B", but locates them at a greater distance from existing development.

Concept "D" - Dispersed Settlement

Concept "D" anticipates future development to be widely dispersed throughout the County of Wentworth, and Burlington.

Manufacturing employment is concentrated within the three principal centres of Hamilton, Burlington and Saltfleet, with Hamilton enlarging its role as a retail and service centre.

Concept "E" -
Hamilton-Centred Growth

Concept "E" envisages all available residential development within the city of Hamilton. To achieve this, development densities in the order of 60 persons per acre gross, are necessary both above and below the mountain. Allowance is made for redevelopment sufficient for a further 30,000 people. Manufacturing employment is shown in close proximity to the City, with a substantial number of jobs above the mountain. The CBD increases its role as a retail and service centre.

Concept "F" -
Burlington-Centred Growth

Concept "F" provides for the concentration of all floating development within Burlington, including some lower density development on the mountain to the west of Burlington. Corresponding increases in manufacturing and commercial employment are shown for Burlington, and Hamilton loses much of its dominance as a commercial centre for the area.

Concept "G" -
Saltfleet-Centred Growth

Concept "G" locates all floating development within Saltfleet above and below the mountain, together with a substantial portion of manufacturing employment. The majority of commercial employment is associated with residential development above the mountain, rather than in the existing CBD, and Hamilton loses some of its dominance as a commercial centre for the area.

Concept "H" -
Southern Corridor Growth

Concept "H" envisages all floating development located in a southern corridor leading to Caledonia and Nanticoke. Densities within the city of Hamilton are increased for those areas adjacent to the corridor. Substantial manufacturing and commercial employment is included within the corridor. The CBD in Hamilton receives slightly more commercial employment than for the Trends Case.

Concept "I" -
Western Sector Growth

Concept "I" provides for the location of all floating development in a western sector, along Highway 8. Manufacturing and commercial employment are included within the growth area. The CBD in Hamilton receives only a small proportion of the total employment growth of the area.

Concept "J" -
Ancaster-West Flamborough Growth

Concept "J" provides for the location of all floating development in an arc around the western end of Dundas. The new development has a strong employment base, including 20,000 manufacturing jobs in West Flamborough. Hamilton receives additional service employment, retaining its dominance as a service centre.

Concept "K" -
West and East Flamborough Growth

In Concept "K" all floating development is located in a linear pattern along the top of the escarpment in East and West Flamborough. As

"J" , there is a strong employment base, including 20,000 manufacturing jobs, and Hamilton receives additional employment retaining its dominance as a service centre.

Explanation of
Tables in Appendix A

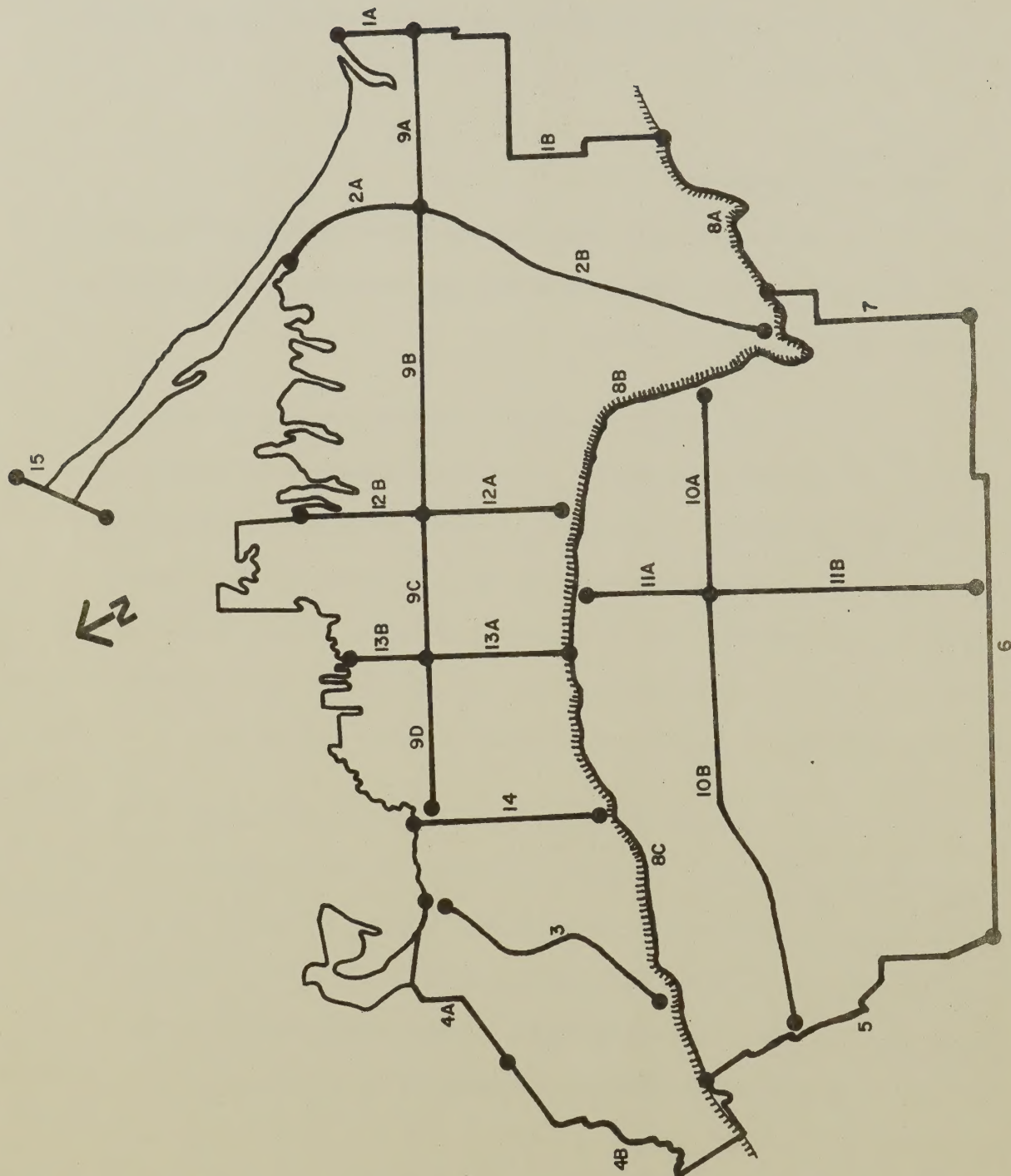
A quantitative description of the common development and each of the concepts, by administrative areas, for population and employment, is contained in Tables A 1 to A4.

Table A5 describes the eleven concepts summarized above, by population distribution and three employment categories of service, retail and manufacturing. In addition, a brief outline is given of the physical constraints on each concept. None of those is a prohibitive constraint but together they provide an indication of some of the difficulties involved in the development. The planning controls which might be required to facilitate concepts are also considered.

For each concept the participation rate for Hamilton, i.e. the ratio of population to employment within the City, has been calculated. As the participation rate for 2001 has already been projected as 0.477, a rate above or below this suggests a net gain or loss of workers to the City. This, therefore, gives a rough indication of regional journey-to-work movements required by each concept.

*employment
population*

SCREENLINE LOCATIONS



DEMAND ANALYSIS

Macro Model

A simple gravity model was used to evaluate, on an approximate or "macro" basis, the relative impact of the alternative growth allocation concepts on transportation in the City of Hamilton. This Macro Model is complementary to the more detailed TARMS model which is being used for the detailed estimate of the Trends traffic demand (Concept A) for the year 2000.

The Macro Model was validated for 1969 conditions and then used to estimate the demand for the 11 year 2000 growth allocation concepts and the common development case. The existing and committed transportation system was used for these projections, i.e. the existing system plus the Mountain and Red Hill Creek Freeways and the York Street widening. The estimated demands were expressed in terms of the volume of p.m. peak hour person trips in the major transportation corridors in the City. The relative impact of the alternative growth allocation concepts can thus be assessed by comparing the projected volumes for the 11 concepts.

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Screenlines

The Traffic Department has defined 15 screenlines for traffic analysis purposes in the City of Hamilton. The locations of these screenlines are shown in Exhibit 1, opposite. As shown, the longer screenlines have been sub-divided to permit more detailed analyses, e.g. screenline 9 has been sub-divided into four parts - A, B, C and D.

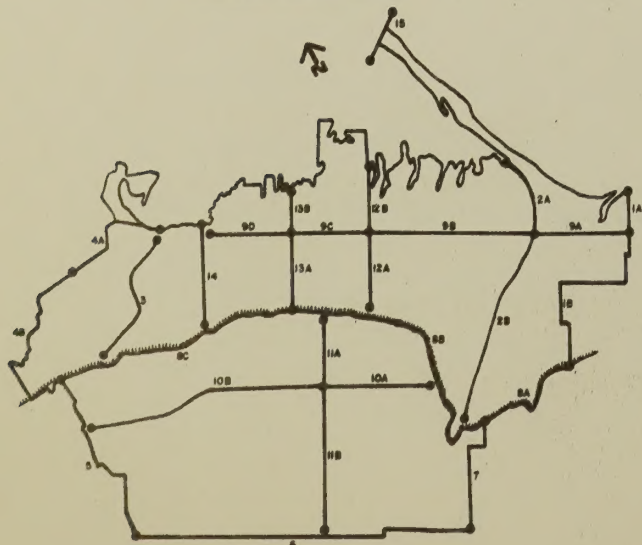
EXHIBIT 2

PROJECTED SCREENLINE VOLUMES

YEAR 2000 TRENDS - CONCEPT A

<u>Screenline</u>	<u>Two Way Person Trips - P.M. Peak Hour ('000)</u>		
	<u>2000 Trends (Concept A)</u>	<u>1971 Observed</u>	<u>Change</u>
1A	27 ✓	4	23
1B	10	5	5
2A	8	5	3
2B	13	8	5
3	37 ✓	14	23
4A	41 ✓	8	33
4B	31 ✓	9	22
5	21 ✓	2	19
6	11 ✓	2	9
7	8	*	8
8A+8B	38 ✓	9	29
8C	28 ✓	11	17
9A+9B	44 ✓	12	32
9C+9D	8	9	1
10A	8	2	6
10B	17	5	12
11A+11B	28 ✓	9	19
12	19	16	3
13	15	18	3
14	34 ✓	17	17
15	47 ✓	5	42

SCREENLINE LOCATIONS



* Negligible

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The output of the Macro Model was summarized by concept for each screenline. A comparative analysis was then made of the relative impact of each growth allocation concept on the volume of peak hour person trips crossing each screenline. The projected volumes were also compared with the existing volumes and with the maximum capacity of the existing and committed transportation system. The information on existing traffic volumes and the capacities of the existing and committed system was compiled by the Traffic Department from its records.

TRANSPORTATION IMPLICATIONS

Trends Growth

The year 2000 Trends case (Concept A) was used as a datum for evaluating the transportation implications of the growth allocation concepts on traffic in the City. The estimated screenline crossings for the Trends case based on the Macro Model are listed in Exhibit 2, opposite. This exhibit compares the estimated Trends volumes with the observed volumes in 1971 and indicates the estimated increase in screenline crossings associated with the Trends type of growth.

It should be noted that a detailed Trends estimate is being prepared using the TARMS model and that the estimates shown in Exhibit 2 are subject to adjustment when the TARMS projection is completed. In some cases, the indicated year 2000 volume is less than that observed in 1971. This type of result is due to the traffic diversion to the Mountain and Red Hill Creek Freeways and possibly to some extent to the estimating error in the Macro Model.

Large increases in screenline crossings are forecast for the following locations:

- Queen Elizabeth Way at the east side of the City (screenline 1A)
- the western approaches to downtown (screenlines 3, 4 and 14)
- the western City limits on the Mountain (screenline 5)
- Mountain access (screenline 8)
- north-south access to the Beach strip and the Bay front industrial area (screenline 9A and B)
- south Mountain (screenlines 10B and 11B).

Capacity Implications

The Traffic Department has prepared estimates of the maximum capability of the existing and committed transportation system to accommodate increases in travel demands. These estimates are presented in Exhibit 3, opposite. The estimated congested capacity across each screenline represents the maximum capability of the existing and committed transportation system given today's car occupancy and modal split (percent transit usage) characteristics. Severe congestion will usually occur when travel demands approach these volumes.

Exhibit 3 also shows the excess volumes of person trips across the screenlines given a Trends type of growth to the year 2000 and the congested capacity of the existing and committed transportation system. These excess volumes represent transportation demands that cannot be accommodated by the Mountain and Red Hill Creek Freeways, the York Street

widening, and operational improvements such as further removal of curb parking and related traffic engineering measures.

There are three basic strategies which can be considered for dealing with the indicated excess demands as follows:

- transit usage could be encouraged in order to reduce the need for additional road capacity
- roadway capacity could be increased by improving existing roads and/or by constructing new roads
- future population and employment growth could be oriented to reduce the excess demand at critical screenlines.

The following are the critical screenlines from the standpoint of the indicated overloading of the existing and committed transportation system:

- the Queen Elizabeth Way at the east side of the City - screenline 1A
- the western approaches to downtown - screenlines 3 and 14
- Highway 403 at Cootes Paradise - screenline 4A
- the west end of the City below the escarpment - screenline 4B
- the east Mountain access - screenline 8 A and B
- the north-south access to the Bay front - screenline 9A and B
- the Mountain Freeway corridor - screenline 11B
- the Beach strip - screenline 15.

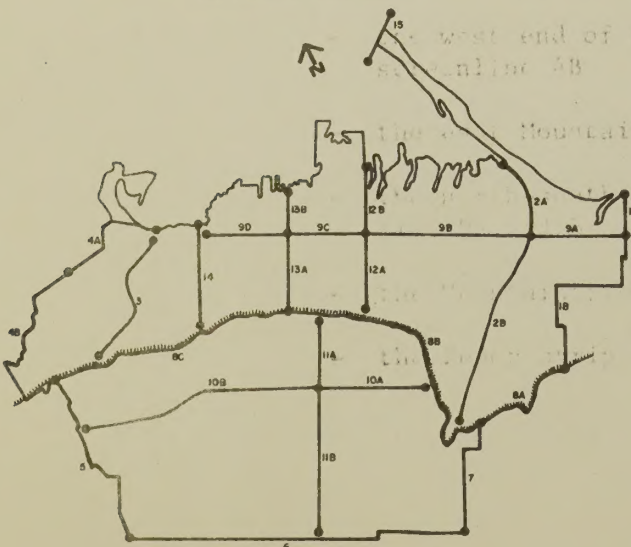
EXHIBIT 4

DIFFERENCE IN SCREENLINE VOLUMES

FROM YEAR 2000 CONCEPT A - TRENDS

<u>Screenline</u>	<u>Difference in Two-Way Person Trips - P.M. Peak Hour ('000)</u>		
	<u>Concept B</u>	<u>Concept C</u>	<u>Concept D</u>
	<u>Close Centres</u>	<u>Remote Centres</u>	<u>Dispersed Settlements</u>
1A	0	+1	+1
1B	-1	-1	-3
2A	0	-1	0
2B	0	-2	-1
3	+1	-4	+4
4A	-2	-6	0
4B	+4	+4	+6
5	0	+7	+3
6	-3	+14	+6
7	+6	+4	+3
8A+8B	+3	-8	-3
8C	-4	-5	-3
9A+9B	-2	-4	-3
9C+9D	-1	0	0
10A	0	0	0
10B	+1	+2	+3
11A+11B	0	+6	+2
12	-1	-4	-2
13	-1	-2	0
14	+3	-4	+5
15	-2	-6	-3

SCREENLINE LOCATIONS



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Transportation Implications
of Alternative Concepts

In order to assess the possible effectiveness of the third basic strategy described above, i.e. reorient growth to reduce the indicated excess travel demand, the estimated screenline volumes for Concepts B through K were compared with the volumes estimated for Concept A - Trends. The results of this analysis are summarized in Exhibits 4, opposite, and Exhibits 5 and 6, overleaf. These exhibits show the differences between the screenline volumes for Concept A and the corresponding volumes for each of the alternative Concepts B through K. The differences are expressed in terms of two-way person trips for the peak hour.

An inspection of the differences between the screenline volumes for Concept A and the corresponding volumes for Concepts B, C and D indicates that the future demands for Concepts B, C and D are not significantly different from those for Concept A. The differences for Concepts B, C and D are shown in Exhibit 4. As indicated in this table the largest differences are for Concept C at screenline 6, the southern City limits, and the east Mountain access, screenline 8A and B. In general, the differences shown in Exhibit 4 are small and do not exceed the error range of the Macro Model.

The screenline volumes for Concepts E, G, and H are significantly different from those for Concept A. The differences between the volumes for these Concepts and Concept A are shown in Exhibit 5, overleaf.

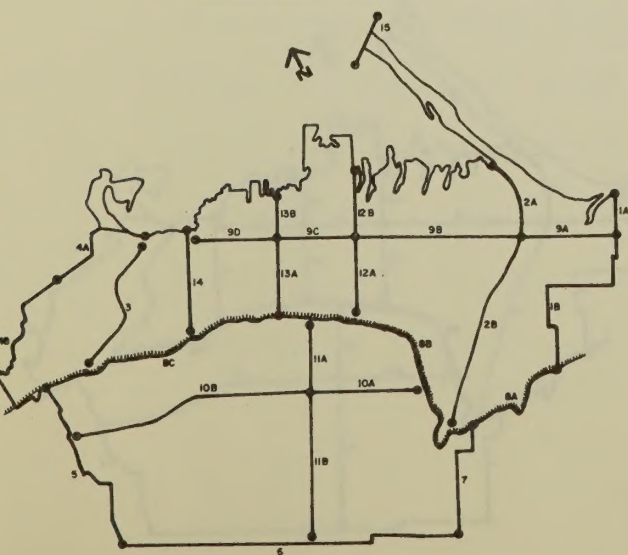
EXHIBIT 5

DIFFERENCE IN SCREENLINE VOLUMES

FROM YEAR 2000 CONCEPT A - TRENDS

<u>Screenline</u>	<u>Difference in Two-Way Trips - P.M. Peak Hour ('000)</u>		
	<u>Concept E</u> <u>Hamilton-Centred</u> <u>Growth</u>	<u>Concept G</u> <u>Saltfleet-Centred</u> <u>Growth</u>	<u>Concept H</u> <u>Southern Corridor</u> <u>Growth</u>
1A	- 1	+12	- 4
1B	0	+10	- 2
2A	- 1	+ 1	- 1
2B	+ 4	+ 1	- 1
3	- 7	-11	-11
4A	- 9	-13	-13
4B	- 6	-26	- 9
5	+ 4	- 4	+ 1
6	- 3	- 3	+59
7	+ 6	+17	- 3
8A+8B	+ 6	- 9	+10
8C	+ 8	- 4	+ 5
9A+9B	0	+ 5	+ 3
9C+9D	0	0	+ 1
10A	+ 2	0	+ 1
10B	+18	+ 4	+16
11A+11B	+23	+ 3	+28
12	+ 2	0	- 4
13	+ 3	- 1	0
14	- 4	- 9	- 9
15	- 9	0	- 4

SCREENLINE LOCATIONS



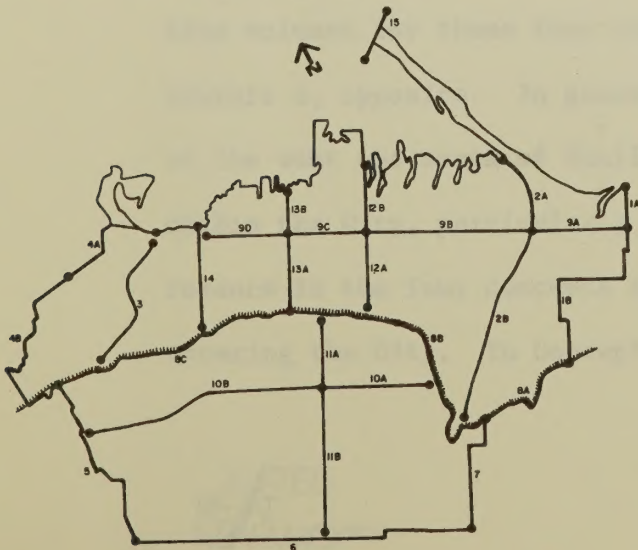
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EXHIBIT 6

DIFFERENCE IN SCREENLINE VOLUMES FROM YEAR 2000 CONCEPT A - TRENDS

Screenline	Difference in Two-Way Person Trips - P.M. Peak Hour ('000)			
	CONCEPT F Burlington Centered Growth	CONCEPT I Western Sector Growth	CONCEPT J Ancaster - W. Flamborough Growth	CONCEPT K W. and E. Flamborough Growth
1A	-1	-2	-2	-2
1B	-4	-4	-4	-4
2A	+1	0	-1	0
2B	-2	-3	-2	-3
3	-3	-4	0	+3
4A	0	-13	-9	-2
4B	-11	-4	+17	+4
5	-7	+1	+6	-4
6	-3	-3	-3	-3
7	-5	-4	-3	-4
8A+8B	-9	-11	-9	-11
8C	-8	-8	-7	-8
9A+9B	-4	-11	-10	-9
9C+9D	0	+1	0	0
10A	0	0	0	-1
10B	-4	-1	-1	-4
11A+11B	-9	-6	-2	-7
12	-2	-4	-4	-4
13	-2	-1	-1	-4
14	-4	-3	+1	+2
15	0	-9	-10	-6

SCREENLINE LOCATIONS



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Under Concept E the screenline volumes in the south Mountain area (screenlines 10B and 11B) are significantly higher than those for Concept A. There is also an increase in the Mountain access volumes (screenlines 8A and B and 8C), but a reduction in the volumes on the Beach strip and the York Street - Highway 403 corridor (screenlines 15 and 4, respectively).

Under Concepts G and H there is a large increase in the volumes near the focus of growth and a reduction in the volumes at the screenlines remote from the growth focus. The East Hamilton volumes (screenlines 1A and 1B) are increased significantly in Concept G, the Saltfleet-Centred Growth case but the west end volumes are reduced (screenlines 4A and 4B). The South Hamilton and Mountain access volumes (screenlines 8A and B, 8C, 10B and 11B) are increased in Concept H, which features growth in the corridor south of Hamilton. There is a reduction in the volumes crossing screenlines 4A and 4B at the west side of the City under Concept H.

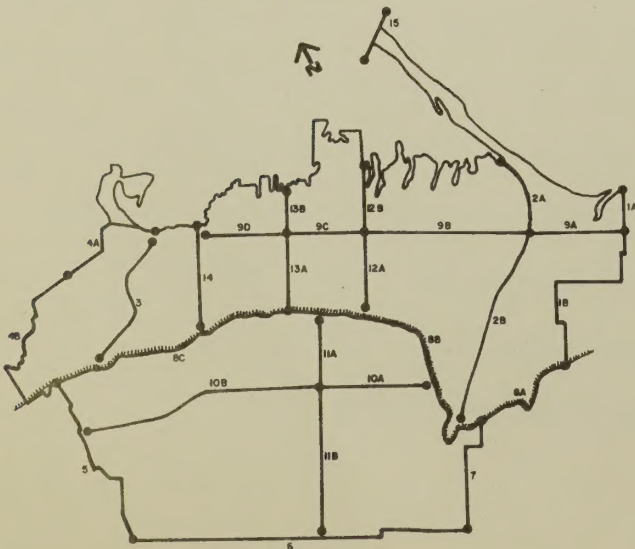
The projected screenline crossings for Concepts F, I, J and K are also significantly different from those for Concept A. The screenline volumes for these four concepts, however, are similar as shown in Exhibit 6, opposite. In general the four concepts, which feature growth to the west and north of Hamilton, tend to reduce the traffic levels within the City, particularly the Mountain access demand. The main difference in the four concepts is the location of the main traffic flows entering the City. In Concept F - Burlington-Centered Growth - the

EXHIBIT 7

LARGEST INCREASES IN SCREENLINE VOLUMES OVER YEAR 2000 CONCEPT A - TRENDS TWO-WAY PERSON TRIPS - P.M. PEAK HOUR ('000)

<u>Screenline</u>	<u>Concept A Volume</u>	<u>Largest Increase</u>	<u>Maximum Volume</u>	<u>Concept</u>
1A	27	+12	39	G
1B	10	+10	20	G
2A	8	+1	9	F,G
2B	13	+4	17	E
3	37	+4	41	D
4A	41	0	41	D,F
4B	31	+17	48	J
5	21	+7	28	C
6	11	+59	70	H
7	8	+17	25	G
8A+8B	38	+10	48	H
8C	28	+8	36	E
9A+9B	44	+5	49	H
9C+9D	8	+1	9	H,I
10A	8	+2	10	E
10B	17	+18	35	E
11A	1	0	1	All
11B	27	+28	55	H
12	19	+2	21	E
13	15	+3	18	E
14	34	+5	39	D
15	47	0	47	G,F

SCREENLINE LOCATIONS



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volumes on the Beach strip and the York Street - Highway 403 corridor are the same as in Concept A. Under Concept I - Western Sector Growth - the volumes crossing the Beach strip (screenline 15) and the western City limits is less than in Concept A. Under Concepts J and K there is an increase in the volumes crossing screenline 4B which is located at the western City limits below the escarpment.

Range of Volumes
at Each Screenline

The 11 growth allocations represent extreme cases in terms of geographic distributions and densities of people and jobs. The estimated volumes for these 11 concepts thus define the probable range of volumes at each screenline for the year 2000, i.e. the maximum and minimum volumes at each screenline given an estimated population for the Head of the Lake Area of one million.

The maximum and minimum volumes at each screenline are summarized in Exhibit 7, opposite and Exhibit 8, overleaf. These exhibits show the largest differences between Concept A and the other ten Concepts B through K.

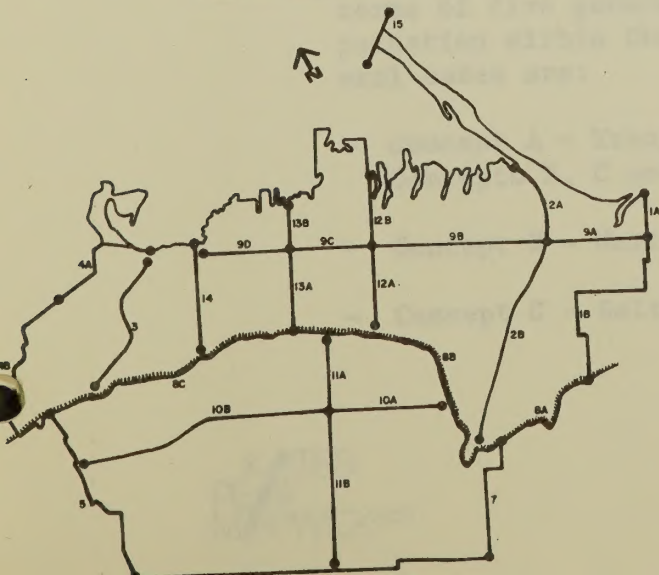
The largest increases in the screenline volumes are listed in Exhibit 7. This exhibit shows that relative to Concept A significant increases in traffic could occur at screenlines 1A, 1B, 4B, 5, 7, 8A and B, 10B and 11B. The largest increase is at the southern City limits (screenline 6) where an increase of 59,000 person trips is projected for Concept H.

EXHIBIT 8

LARGEST REDUCTIONS IN SCREENLINE VOLUMES FROM YEAR 2000 CONCEPT A - TRENDS TWO-WAY PERSON TRIPS - P.M. PEAK HOUR ('000)

<u>Screenline</u>	<u>Concept A Volume</u>	<u>Largest Reduction</u>	<u>Minimum Volume</u>	<u>Concept</u>
1A	27	-4	23	H
1B	10	-4	6	F,I,J,K
2A	8	-1	7	C,E,H,J
2B	13	-3	10	I,K
3	37	-11	26	G,H
4A	41	-13	28	G,H,I
4B	31	-26	5	G
5	21	-7	14	F
6	11	-3	8	B,E,F,G,I,J,K
7	8	-5	3	F
8A+8B	38	-11	27	I,K
8C	28	-8	20	F,I,K
9A+9B	44	-11	33	I
9C+9D	8	-1	7	B
10A	8	-1	7	K
10B	17	-4	13	F,K
11A	1	0	1	All
11B	27	-9	18	F
12	19	-4	15	C,H,I,J,K
13	15	-4	11	K
14	34	-9	25	G,H
15	47	-10	37	J

SCREENLINE LOCATIONS



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The minimum volumes at the screenlines are listed in Exhibit 8. This exhibit indicates that relative to Concept A significant reductions in screenline volumes could occur at six screenlines - numbers 3, 4A, 4B, 8A and B, 9A and B, and 15. Of particular interest are the reductions that are possible at screenlines 4A, 4B, 8A and B, and 15. These screenlines are located at the western City limits, the escarpment and the Beach strip, all corridors with physical constraints on capacity increases. Under Concepts I (Western Sector Growth) and K (West and East Flamborough Growth) it is possible to reduce the Mountain access demands (screenlines 8A and B and 8C) by 19,000 person trips from the demand level of 66,000 person trips projected in the Trends case (Concept A).

CONCLUSIONS

1. The Trends projection indicates that if present trends continue significant excess demand can be expected on the western approaches to the downtown area, on the east Mountain access routes, in the southern part of the Mountain area, on the Beach strip and at the City limits below the escarpment. The projected Trends demand exceeds the maximum capacity of the existing and committed transportation system which includes the Mountain and the Red Hill Creek Freeways and the York Street widening.
2. The 11 growth allocation concepts can be summarized in terms of five general cases from the standpoint of transportation within the City of Hamilton. These five general cases are:
 - Concept A - Trends (which is also representative of Concepts B, C and D)
 - Concept E - Hamilton-Centered Growth
 - Concept G - Saltfleet-Centered Growth

- Concept H - Southern Corridor Growth
- Growth to the north and west of the City as reflected in Concepts F, I, J and K (these four concepts are similar in their effects on transportation in the City of Hamilton, the only difference being the location of entering traffic to the City).

In summary, the basic choices are between maintaining present trends, focusing the area's growth within the City limits, or directing the growth to the east, south, or north/west.

3. The focusing of future growth to the north and/or west (Concepts F, I, J and K) generally would reduce transportation demand within the City limits particularly the Mountain access volumes. The orientation of future growth to the south would increase traffic levels on the Mountain and on the Mountain access routes. A growth orientation to the east would require additional east-west capacity above and below the escarpment. Hamilton-Centered Growth would increase traffic levels on the Mountain and on the Mountain access routes.

Development Concept	1	2	3	4	5	6	7	8	9	10	11	12
Concept 1	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000	550,000	600,000	650,000
Concept 2	120,000	180,000	240,000	300,000	360,000	420,000	480,000	540,000	600,000	660,000	720,000	780,000
Concept 3	140,000	210,000	280,000	350,000	420,000	490,000	560,000	630,000	700,000	770,000	840,000	910,000
Concept 4	160,000	240,000	320,000	400,000	480,000	560,000	640,000	720,000	800,000	880,000	960,000	1,040,000
Concept 5	180,000	270,000	360,000	450,000	540,000	630,000	720,000	810,000	900,000	990,000	1,080,000	1,170,000
Concept 6	200,000	300,000	400,000	500,000	600,000	700,000	800,000	900,000	1,000,000	1,100,000	1,200,000	1,300,000
Concept 7	220,000	330,000	440,000	550,000	660,000	770,000	880,000	990,000	1,100,000	1,210,000	1,320,000	1,430,000
Concept 8	240,000	360,000	480,000	600,000	720,000	840,000	960,000	1,080,000	1,200,000	1,320,000	1,440,000	1,560,000
Concept 9	260,000	390,000	520,000	650,000	780,000	910,000	1,040,000	1,170,000	1,300,000	1,430,000	1,560,000	1,690,000
Concept 10	280,000	420,000	560,000	700,000	840,000	980,000	1,120,000	1,260,000	1,400,000	1,540,000	1,680,000	1,820,000
Concept 11	300,000	450,000	600,000	750,000	900,000	1,050,000	1,200,000	1,350,000	1,500,000	1,650,000	1,800,000	1,950,000
Concept 12	320,000	480,000	640,000	800,000	960,000	1,120,000	1,280,000	1,440,000	1,600,000	1,760,000	1,920,000	2,080,000
Concept 13	340,000	510,000	680,000	850,000	1,020,000	1,190,000	1,360,000	1,530,000	1,700,000	1,870,000	2,040,000	2,210,000
Concept 14	360,000	540,000	720,000	900,000	1,080,000	1,260,000	1,440,000	1,620,000	1,800,000	1,980,000	2,160,000	2,340,000
Concept 15	380,000	570,000	760,000	950,000	1,140,000	1,320,000	1,500,000	1,680,000	1,860,000	2,040,000	2,220,000	2,400,000
Concept 16	400,000	600,000	800,000	1,000,000	1,200,000	1,400,000	1,600,000	1,800,000	2,000,000	2,200,000	2,400,000	2,600,000
Concept 17	420,000	630,000	840,000	1,050,000	1,260,000	1,470,000	1,680,000	1,890,000	2,100,000	2,310,000	2,520,000	2,730,000
Concept 18	440,000	660,000	880,000	1,100,000	1,320,000	1,540,000	1,760,000	1,980,000	2,200,000	2,420,000	2,640,000	2,860,000
Concept 19	460,000	690,000	920,000	1,150,000	1,380,000	1,610,000	1,840,000	2,070,000	2,300,000	2,530,000	2,760,000	2,990,000
Concept 20	480,000	720,000	960,000	1,200,000	1,440,000	1,680,000	1,920,000	2,160,000	2,400,000	2,640,000	2,880,000	3,120,000
Concept 21	500,000	750,000	1,000,000	1,250,000	1,500,000	1,750,000	2,000,000	2,250,000	2,500,000	2,750,000	3,000,000	3,250,000
Concept 22	520,000	780,000	1,040,000	1,300,000	1,560,000	1,820,000	2,080,000	2,360,000	2,620,000	2,880,000	3,140,000	3,400,000
Concept 23	540,000	810,000	1,080,000	1,350,000	1,620,000	1,900,000	2,160,000	2,440,000	2,700,000	2,960,000	3,220,000	3,480,000
Concept 24	560,000	840,000	1,120,000	1,400,000	1,680,000	1,980,000	2,240,000	2,520,000	2,780,000	3,040,000	3,300,000	3,560,000
Concept 25	580,000	870,000	1,160,000	1,450,000	1,740,000	2,060,000	2,320,000	2,600,000	2,860,000	3,120,000	3,380,000	3,640,000
Concept 26	600,000	900,000	1,200,000	1,500,000	1,800,000	2,140,000	2,400,000	2,680,000	2,940,000	3,200,000	3,460,000	3,720,000
Concept 27	620,000	930,000	1,240,000	1,550,000	1,860,000	2,220,000	2,480,000	2,760,000	3,020,000	3,280,000	3,540,000	3,800,000
Concept 28	640,000	960,000	1,280,000	1,600,000	1,920,000	2,300,000	2,560,000	2,840,000	3,100,000	3,360,000	3,620,000	3,880,000
Concept 29	660,000	990,000	1,320,000	1,650,000	1,980,000	2,380,000	2,640,000	2,920,000	3,180,000	3,440,000	3,700,000	3,960,000
Concept 30	680,000	1,020,000	1,360,000	1,700,000	2,040,000	2,460,000	2,720,000	3,000,000	3,260,000	3,520,000	3,780,000	4,040,000
Concept 31	700,000	1,050,000	1,400,000	1,750,000	2,100,000	2,540,000	2,800,000	3,080,000	3,340,000	3,600,000	3,860,000	4,120,000
Concept 32	720,000	1,080,000	1,440,000	1,800,000	2,160,000	2,620,000	2,880,000	3,160,000	3,420,000	3,680,000	3,940,000	4,200,000
Concept 33	740,000	1,110,000	1,480,000	1,850,000	2,220,000	2,700,000	2,960,000	3,240,000	3,500,000	3,760,000	4,020,000	4,280,000
Concept 34	760,000	1,140,000	1,520,000	1,900,000	2,280,000	2,780,000	3,040,000	3,320,000	3,580,000	3,840,000	4,100,000	4,360,000
Concept 35	780,000	1,170,000	1,560,000	1,950,000	2,340,000	2,860,000	3,120,000	3,400,000	3,660,000	3,920,000	4,180,000	4,440,000
Concept 36	800,000	1,200,000	1,600,000	2,000,000	2,400,000	2,940,000	3,200,000	3,480,000	3,740,000	4,000,000	4,260,000	4,520,000
Concept 37	820,000	1,230,000	1,640,000	2,050,000	2,460,000	3,020,000	3,280,000	3,560,000	3,820,000	4,080,000	4,340,000	4,600,000
Concept 38	840,000	1,260,000	1,680,000	2,100,000	2,520,000	3,100,000	3,360,000	3,640,000	3,900,000	4,160,000	4,420,000	4,680,000
Concept 39	860,000	1,290,000	1,720,000	2,150,000	2,580,000	3,180,000	3,440,000	3,720,000	3,980,000	4,240,000	4,500,000	4,760,000
Concept 40	880,000	1,320,000	1,760,000	2,200,000	2,640,000	3,260,000	3,520,000	3,800,000	4,060,000	4,320,000	4,580,000	4,840,000
Concept 41	900,000	1,350,000	1,800,000	2,250,000	2,700,000	3,340,000	3,600,000	3,880,000	4,140,000	4,400,000	4,660,000	4,920,000
Concept 42	920,000	1,380,000	1,840,000	2,300,000	2,760,000	3,420,000	3,680,000	3,960,000	4,220,000	4,480,000	4,740,000	5,000,000
Concept 43	940,000	1,410,000	1,880,000	2,350,000	2,820,000	3,500,000	3,760,000	4,040,000	4,300,000	4,560,000	4,820,000	5,080,000
Concept 44	960,000	1,440,000	1,920,000	2,400,000	2,880,000	3,580,000	3,840,000	4,120,000	4,380,000	4,640,000	4,900,000	5,160,000
Concept 45	980,000	1,470,000	1,960,000	2,450,000	2,940,000	3,660,000	3,920,000	4,200,000	4,460,000	4,720,000	4,980,000	5,240,000
Concept 46	1,000,000	1,500,000	2,000,000	2,500,000	3,000,000	3,740,000	4,000,000	4,280,000	4,540,000	4,800,000	5,060,000	5,320,000
Concept 47	1,020,000	1,530,000	2,040,000	2,550,000	3,060,000	3,820,000	4,080,000	4,360,000	4,620,000	4,880,000	5,140,000	5,400,000
Concept 48	1,040,000	1,560,000	2,080,000	2,600,000	3,120,000	3,900,000	4,160,000	4,440,000	4,700,000	4,960,000	5,220,000	5,480,000
Concept 49	1,060,000	1,590,000	2,120,000	2,650,000	3,180,000	3,980,000	4,240,000	4,520,000	4,780,000	5,040,000	5,300,000	5,560,000
Concept 50	1,080,000	1,620,000	2,160,000	2,700,000	3,240,000	4,060,000	4,320,000	4,600,000	4,860,000	5,120,000	5,380,000	5,640,000
Concept 51	1,100,000	1,650,000	2,200,000	2,750,000	3,300,000	4,140,000	4,400,000	4,680,000	4,940,000	5,200,000	5,460,000	5,720,000
Concept 52	1,120,000	1,680,000	2,240,000	2,800,000	3,360,000	4,220,000	4,480,000	4,760,000	5,020,000	5,280,000	5,540,000	5,800,000
Concept 53	1,140,000	1,710,000	2,280,000	2,850,000	3,420,000	4,300,000	4,560,000	4,840,000	5,100,000	5,360,000	5,620,000	5,880,000
Concept 54	1,160,000	1,740,000	2,320,000	2,900,000	3,480,000	4,380,000	4,640,000	4,920,000	5,180,000	5,440,000	5,700,000	5,960,000
Concept 55	1,180,000	1,770,000	2,360,000	2,950,000	3,540,000	4,460,000	4,720,000	5,000,000	5,260,000	5,520,000	5,780,000	6,040,000
Concept 56	1,200,000	1,800,000	2,400,000	3,000,000	3,600,000	4,540,000	4,800,000	5,080,000	5,340,000	5,600,000	5,860,000	6,120,000
Concept 57	1,220,000	1,830,000	2,440,000	3,050,000	3,660,000	4,620,000	4,880,000	5,160,000	5,420,000	5,680,000	5,940,000	6,200,000
Concept 58	1,240,000	1,860,000	2,480,000	3,100,000	3,720,000	4,700,000	4,960,000	5,240,000	5,500,000	5,760,000	6,020,000	6,280,000
Concept 59	1,260,000	1,890,000	2,520,000	3,150,000	3,780,000	4,780,000	5,040,000	5,320,000	5,580,000	5,840,000	6,100,000	6,360,000
Concept 60	1,280,000	1,920,000	2,560,000	3,200,000	3,840,000	4,860,000	5,120,000	5,400,000	5,660,000	5,920,000	6,180,000	6,440,000
Concept 61	1,300,000	1,950,000	2,600,000	3,250,000	3,900,000	4,940,000	5,200,000	5,480,000	5,740,000	6,000,000	6,260,000	6,520,000
Concept 62	1,320,000	1,980,000	2,640,000	3,300,000	3,960,000	5,020,000	5,280,000	5,560,000	5,820,000	6,080,000	6,340,000	6,600,000
Concept 63	1,340,000	2,010,000	2,680,000	3,350,000	4,020,000	5,100,000	5,360,000	5,640,000	5,900,000	6,160,000	6,420,000	6,680,000
Concept 64	1,360,000	2,040,000	2,720,000	3,400,000	4,080,000	5,180,000	5,440,000	5,720,000	5,980,000	6,240,000	6,500,000	6,760,000
Concept 65	1,380,000	2,070,000	2,760,000	3,450,000	4,140,000	5,260,000	5,520,000	5,800,000	6,060,000	6,320,000	6,580,000	6,840,000
Concept 66	1,400,000	2,100,000	2,800,000	3,500,000	4,200,000	5,340,000	5,600,000	5,880,000	6,140,000	6,400,000	6,660,000	6,920,000
Concept 67	1,420,000	2,130,000	2,840,000	3,550,000	4,260,000	5,420,000	5,680,000	5,960,000	6,220,000	6,480,000	6,740,000	7,000,000
Concept 68	1,440,000	2,160,000	2,880,000	3,600,000	4,320,000	5,500,000	5,760,000	6,040,000	6,300,000	6,560,000	6,820,000	7,080,000
Concept 69	1,460,000	2,190,000	2,920,000	3,650,000								

TABLE A1

DISTRIBUTION OF POPULATION

Administrative Areas	Popula- tion in Surviving Dwellings	Common Develop- ment	CONCEPTS								
			A	B	C	D	E	F	G	H	I
Hamilton	268,000	388,000	463,000	388,000	388,000	388,000	710,900	388,000	388,000	468,000	388,000
Burlington	69,000	139,000	253,000	217,000	139,000	159,000	139,000	421,900	139,000	139,000	139,000
Ancaster	13,100	13,100	44,700	63,100	63,100	43,100	13,100	13,100	13,100	13,100	13,100
Saltfleet and Stoney Creek	22,600	96,500	140,200	166,500	154,300	116,500	96,500	96,500	419,400	96,500	96,500
Rinbrook	3,200	3,200	6,300	38,100	3,200	33,200	3,200	3,200	3,200	3,200	3,200
Glanford	5,200	5,200	14,000	5,200	53,200	35,200	5,200	5,200	5,200	248,100	5,200
Beverley and West Flamborough	12,600	12,600	26,600	42,600	120,500	135,500	12,600	12,600	12,600	12,600	335,500
East Flamborough	4,500	4,500	12,600	44,500	63,500	74,500	4,500	44,500	4,500	4,500	4,500
Waterdown	1,800	1,800	3,000	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Dundas	13,200	13,200	36,600	33,200	13,200	13,200	13,200	13,200	13,200	13,200	13,200
TOTAL:	407,100	677,100	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000

TABLE A1
(CONTINUED)

DISTRIBUTION OF POPULATION

Administrative Areas	CONCEPTS	
	J	K
Hamilton	388,000	388,000
Burlington	139,000	139,000
Ancaster	103,100	13,100
Saltfleet and Stoney Creek	96,500	96,500
Binbrook	3,200	3,200
Glanford	5,200	5,200
Beverley and West Flamborough	245,500	199,300
East Flamborough	4,500	139,500
Waterdown	1,800	3,000
Dundas	13,200	13,200
TOTAL	1,000,000	1,000,000

TABLE A2

DISTRIBUTION OF SERVICE EMPLOYMENT

Administrative Areas	Existing Employment	Employment for Common	CONCEPTS								
			A	B	C	D	E	F	G	H	I
Hamilton	48,196	143,600	178,500	155,651	143,600	184,400	240,900	143,600	143,600	172,400	143,600
Burlington	7,086	50,000	91,100	75,668	50,000	69,686	50,000	135,240	50,000	50,000	50,000
Ancaster	439	557	4,300	12,725	15,639	4,207	557	557	557	557	557
Saltfleet and Stoney Creek	1,553	4,115	13,700	21,150	21,629	6,547	4,115	4,115	101,415	4,115	4,115
Binbrook	114 ⁽¹⁾	134	600	8,612	134	3,784	134	134	134	134	134
Clanford	181 ⁽¹⁾	224	1,400	224	14,722	3,874	224	224	224	68,751	224
Beverley and West Flamborough	370 ⁽¹⁾	538	2,600	7,838	32,939	15,453	538	538	538	538	97,838
East Flamborough	224	192	1,200	9,926	17,998	8,710	192	12,252	192	192	192
Waterdown	170	77	300	77	77	77	77	77	77	77	77
Dundas	650	563	3,600	5,430	563	563	563	563	563	563	563
TOTAL:	59,024	200,000	297,300	297,300	297,300	297,300	297,300	297,300	297,300	297,300	297,300

(1) Employment for areas in TARMS zones only, no comparable data available for areas outside.

Kates, Peat, Marwick & Co.

TABLE A2
(CONTINUED)

DISTRIBUTION OF SERVICE EMPLOYMENT

Administrative Areas	CONCEPTS	
	J	K
Hamilton	152,844	148,221
Burlington	50,000	54,621
Ancaster	23,019	557
Saltfleet and Stoney Creek	4,115	4,115
Binbrook	134	134
Glanford	224	224
Beverley and West Flamborough	66,134	54,627
East Flamborough	192	) 34,238
Waterdown	77	)
Dundas	563	563
TOTAL	297,300	297,300

TABLE A3

DISTRIBUTION OF RETAIL EMPLOYMENT

Administrative Areas	Existing Employment	Employment for Common	CONCEPTS								
			A	B	C	D	E	F	G	H	I
Hamilton	11,900	18,496	23,000	18,496	18,496	23,896	33,100	18,496	18,496	22,110	18,496
Burlington	3,909	6,076	13,488	11,500	6,076	9,541	6,076	20,232	6,076	6,076	6,076
Ancaster	123	491	1,435	2,691	2,779	911	491	491	491	491	491
Saltfleet and Stoney Creek	415	3,870	4,240	7,169	6,696	4,470	3,870	3,870	18,474	3,870	3,870
Binbrook	(1) 5	103	446	1,643	103	703	103	103	103	103	103
Glanford	(1) 18	244	791	244	2,304	804	244	244	244	11,216	244
Beverley and West Flamborough	(1) 45	491	893	1,821	5,364	2,991	491	491	491	491	15,154
East Flamborough and Waterdown	159	142	159	142	2,742	1,192	142	486	142	142	142
Dundas	1,003	583	1,148	1,451	583	583	583	583	583	583	583
TOTAL:	17,536	30,500	45,100	45,100	45,100	45,100	45,100	45,100	45,100	45,100	45,100

(1) Employment for areas in TARMS zones only, no comparable data available for areas outside.

Kates, Peat, Marwick & Co.

TABLE A3
(CONTINUED)

DISTRIBUTION OF RETAIL EMPLOYMENT

Administrative Areas	CONCEPTS	
	J	K
Hamilton	19,112	18,640
Burlington	6,076	6,230
Ancaster	4,213	491
Saltfleet and Stoney Creek	3,870	3,870
Binbrook	103	103
Glanford	244	244
Beverley and West Flamborough	10,757	9,168
East Flamborough	142	5,771
Waterdown		
Dundas	583	583
TOTAL	45,100	45,100

TABLE A4

DISTRIBUTION OF MANUFACTURING EMPLOYMENT

Administrative Areas	Existing Employment	Employment for Common	CONCEPTS								
			A	B	C	D	E	F	G	H	I
Hamilton	64,415	76,000	82,765	78,000	78,000	98,000	78,000	78,000	78,000	82,765	78,000
Burlington	8,798	8,798	34,000	18,698	8,798	19,598	8,798	48,618	8,798	8,798	8,798
Ancaster	65	65	415	6,265	6,165	65	65	65	65	65	65
Saltfleet and Stoney Creek	2,460	2,400	10,300	11,060	9,660	11,560	12,460	2,460	42,360	2,460	2,460
Binbrook	45	45	45	4,345	45	45	45	45	45	45	45
Glanford	45	45	45	45	5,945	45	29,945	45	45	35,185	45
Beverley and West Flamborough	284	284	284	3,984	13,684	284	284	284	284	284	40,184
East Flamborough	216	216	216	4,070	7,516	216	216	216	216	216	216
Waterdown	45	45	45	45	45	45	45	45	45	45	45
Dundas	2,188	2,188	4,000	4,688	2,188	2,188	2,188	2,188	2,188	2,188	2,188
TOTAL:	78,374	90,146	132,046	132,046	132,046	132,046	132,046	132,046	132,046	132,046	132,046

Kates, Peat, Marwick & Co.

TABLE A4
(CONTINUED)

DISTRIBUTION OF MANUFACTURING EMPLOYMENT

	CONCEPTS	
	J	K
Administrative Areas		
Hamilton	82,894	82,894
Burlington	23,804	23,804
Ancaster	65	65
Saltfleet and Stoney Creek	2,460	2,460
Binbrook	45	45
Glanford	45	45
Beverley and West Flamborough	20,284	8,504
East Flamborough	216	11,996
Waterdown	45	45
Dundas	2,188	2,188
TOTAL	132,046	132,046

TABLE A5

DEVELOPMENT CONCEPTS

	COMMON	A	B	C
1. Population Distribution	Total 677,000 of which 270,000 is new development located on the periphery of existing urban areas utilising existing services. Hamilton = 388,000	Trends Plan: As policy, modified to one million. Development centres at Ancaster, West Flamborough and considerable growth in Burlington and Saltfleet. Hamilton = 463,000	Close Centres: New development concentrated in centres close to existing areas. Similar to "A" but strengthening O.H.C. and restriction of Hamilton. Hamilton = 388,000	Remote Centres: Development concentrated in centres but at a greater distance from existing areas. Centres of about 50,000 located in E. and W. Flamborough, Beverley, Glanford, Ancaster and Saltfleet. Hamilton = 388,000
2. Service Employment	Hamilton remains as a service centre for the region, loses some to Burlington. Considerable growth in CBD. Hamilton = 143,000 jobs.	Continuation of present with Hamilton a strong centre. Hamilton = 179,000 jobs.	Strong service centres. Hamilton retains a fair proportion of its present share. Hamilton = 156,000 jobs.	Remote centres are strong and Hamilton's share is reduced from existing. Hamilton = 144,000 jobs.
3. Retail Employment	Hamilton remains as a retail centre for the region. Hamilton = 18,000 jobs.	Hamilton remains as a retail centre for the region. Hamilton = 23,000 jobs.	Strong retail centres. Hamilton loses some of its present share. Hamilton = 18,000 jobs.	Remote centres are strong, Hamilton is reduced. Hamilton = 18,000 jobs.
4. Manufacturing Employment	Increase in Stelco and Defasco by 14,000. All other manufacture remains at 1969 level. Hamilton = 76,000 jobs.	Increase mainly on the Burlington-Hamilton axis. An extra 5,000 on the Mt. Hamilton = 83,000 jobs.	Some to each node. Major reduction in Burlington from Trends Ancaster, Binbrook, W. and E. Flamborough take 4,000-5,000 each. Hamilton = 78,000 jobs.	Manufacturing to each centre. Burlington gets none extra on Common. Hamilton = 78,000 jobs.
5. Implied (1) Participation	0.614	0.614	0.615	0.619
6. Constraints on Development over "A"	-	-	Development in Binbrook is outside the watershed. New sewerage treatment plants will be necessary. On good soil.	Development in Beverley, Glanford and Saltfleet outside watershed. Development in E. and W. Flamborough a long way from services. New sewerage treatment plants will be necessary. On good soil.
7. Planning Controls Required	-	Continuation of present policies	Encouragement of employment nodes.	Strict controls plus strong encouragement of new development

Note: All concepts are additions to the Common.

(1) The participation rate for the study area (the ratio of employment to population), is 0.477. The "Implied participation rate", calculated for the City of Hamilton only, suggests a net inflow or outflow of workers. A rate in excess of 0.477 suggests that there will be a net inflow of workers into the City.

TABLE A5 (CONTINUED)

DEVELOPMENT CONCEPTS

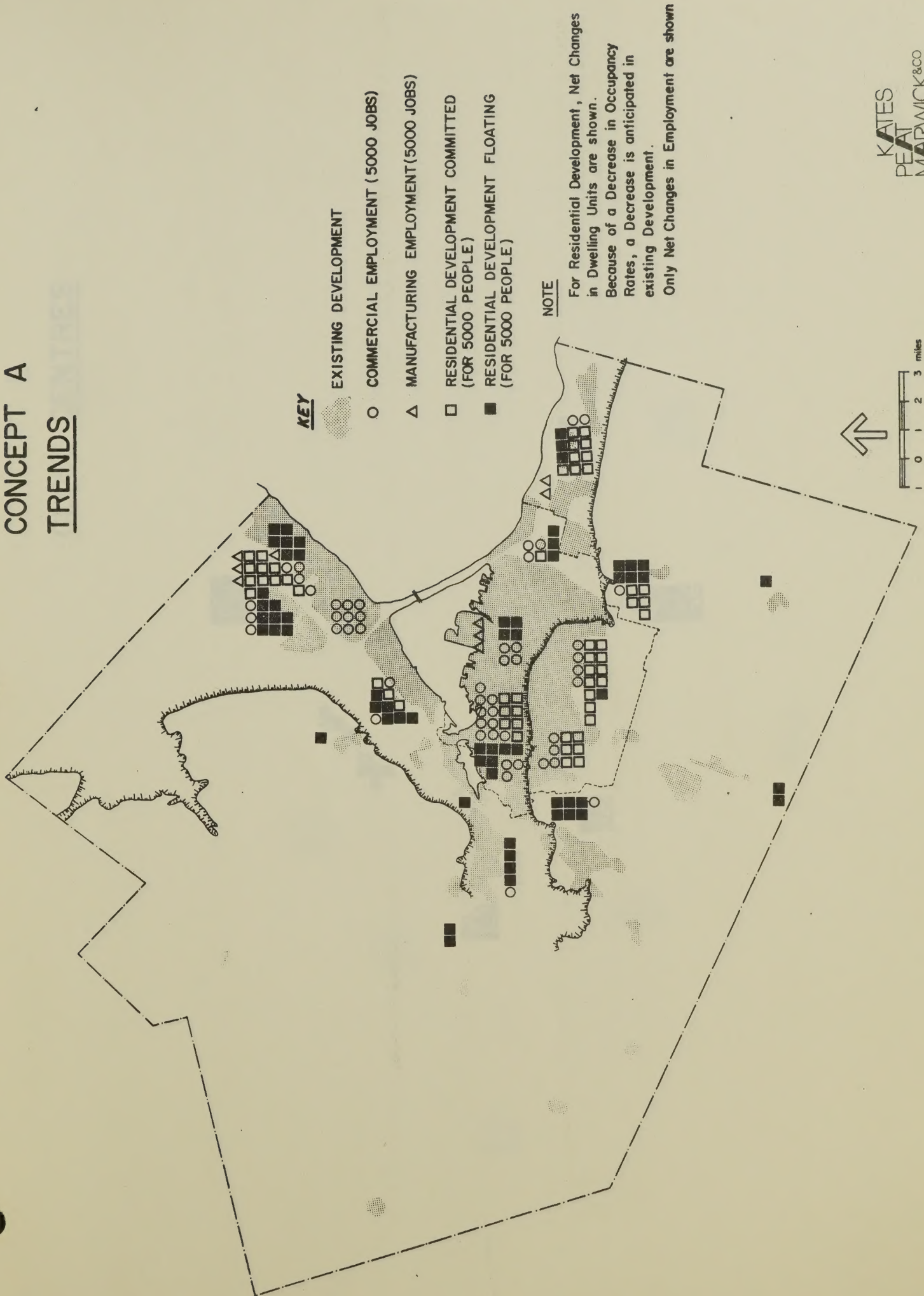
	D	E	F	G
1. Population Distribution	Dispersed Settlement: All new development in the rural areas, in either small settlements or scattered dwellings. Hamilton at 388,000	Hamilton-Centred Growth: All residential development concentrated within Hamilton, including 40,000 in redevelopment downtown. Approx. 60,000 extra in Riverdale area. Hamilton: 710,000	Burlington-Centred Growth: All residential development in Burlington and E. Flamborough. Hamilton = 388,000	Saltfleet-Centred Growth: All new development in Saltfleet. Approximately 90,000 extra below Mt. and over 300,000 above the Mt. Hamilton = 388,000
2. Service Employment	Settlements are not strong, service centres. Hamilton's role is increased. Hamilton = 184,000 jobs.	Hamilton's share very much greater with strong centres outside CBD. Hamilton = 240,000 jobs.	Burlington grows as a strong service centre at the expense of Hamilton. Hamilton = 144,000 jobs.	Saltfleet growth involves a major service centre which diminishes Hamilton's share of service employment Hamilton = 144,000 jobs.
3. Retail Employment	The role of Hamilton CBD is increased. Hamilton = 24,000 jobs.	Hamilton's share very much greater, with strong centres outside CBD. Hamilton = 33,000 jobs.	Hamilton loses its share of retail employment to Burlington. Hamilton = 18,000 jobs.	Saltfleet grows at the expense of Hamilton. Hamilton = 19,000 jobs.
4. Manufacturing Employment	Concentrated in Hamilton and Burlington. 20,000 jobs on the Mt. Hamilton = 98,000 jobs.	None extra in Hamilton Employment in Glanford and Saltfleet. Hamilton = 78,000.	All extra industry in Burlington. Hamilton = 78,000 jobs.	All extra in Saltfleet. Hamilton = 78,000 jobs.
5. Implied ⁽¹⁾ Participation	0.789	0.495	0.619	0.621
6. Constraints on Development over "A"	Development will probably require septic tanks which may lead to ground pollution. On good soil.	Some industrial development in Glanford will be outside watershed. New trunk sewers will be needed on the mountain. High densities required in excess of 60 PPA gross.	Will require high densities in Burlington. Development on good soil.	Much of the development outside the watershed. Some development on good soil.
7. Planning Controls Required	Requires strict controls in urban areas, plus relaxation of controls in rural areas.	Strict controls required plus promotion of high density.	Strict controls needed in Hamilton.	Strict controls plus encouragement for development in Saltfleet.

TABLE A5 (CONTINUED)

DEVELOPMENT CONCEPTS

	H	I	J	K
1. Population Distribution	Southern Corridor: All extra growth in corridor south of Hamilton divided between Glanford and Hamilton. Hamilton = 468,000	Western Sector: All extra growth in new community in Beverley. Hamilton = 388,000	Ancaster-West Flamborough Growth: New development located in an arc around the Western end of Dundas, with 90,000 people in Ancaster and 230,000 in Beverley and West Flamborough. Hamilton = 388,000	West and East Flamborough Growth: All floating development located in a linear pattern along the top of the escarpment in East and West Flamborough. Hamilton = 388,000
2. Service Employment	Employment split between Hamilton and Glanford. Hamilton remains strong. Hamilton = 172,000 jobs.	Hamilton loses much of its regional domination to the new city. Hamilton = 144,000 jobs.	Hamilton remains the principal service centre. Hamilton = 153,000 jobs	Hamilton loses some of its dominance to Burlington. Hamilton = 148,000 jobs
3. Retail Employment	Employment split between Hamilton and Glanford. Hamilton remains strong. Hamilton = 22,000 jobs.	Hamilton loses much of its regional domination to the new city. Hamilton = 18,000 jobs.	The new community develops a strong retail centre. Hamilton = 19,000 jobs	The new community develops a strong retail centre, and Hamilton loses some of its dominance to Burlington. Hamilton = 18,600 jobs
4. Manufacturing Employment	Most in Glanford, some in S.E. of Hamilton Hamilton = 83,000 jobs.	All extra industry in new city. Hamilton = 78,000 jobs.	20,000 jobs in the new community but none in Ancaster which is reserved for residential. Most of the remaining jobs go to Burlington. Hamilton = 83,000 jobs	20,000 jobs in the new community, with most of the remaining jobs in Burlington. Hamilton = 83,000 jobs
5. Implied ⁽¹⁾ Participation	0.592	0.614	0.657	0.644
6. Constraints on Development over "A"	Most of the development outside the watershed, but within projected noise contours for the airport. New sewerage and water system needed. Development on good soil.	All development outside the watershed. Some may be on shallow soil some on good soil. New sewerage system required.	Some development in Ancaster will be outside the watershed, and on steeply sloping land.	All the development within the Lake Ontario watershed and no major physical constraints to development.
7. Planning Controls Required	Strict controls plus encouragement for development in Glanford.	Strict controls plus major initiation policies.	Strict controls will probably be required not only to direct development, but also to ensure that it is a well planned community rather than just a suburb of Hamilton	As with "J", controls will be required to ensure a well planned community rather than suburban type development.

CONCEPT A TRENDS



KEY

EXISTING DEVELOPMENT

○ COMMERCIAL EMPLOYMENT (5000 JOBS)

△ MANUFACTURING EMPLOYMENT (5000 JOBS)

□ RESIDENTIAL DEVELOPMENT COMMITTED (FOR 5000 PEOPLE)

■ RESIDENTIAL DEVELOPMENT FLOATING (FOR 5000 PEOPLE)

NOTE

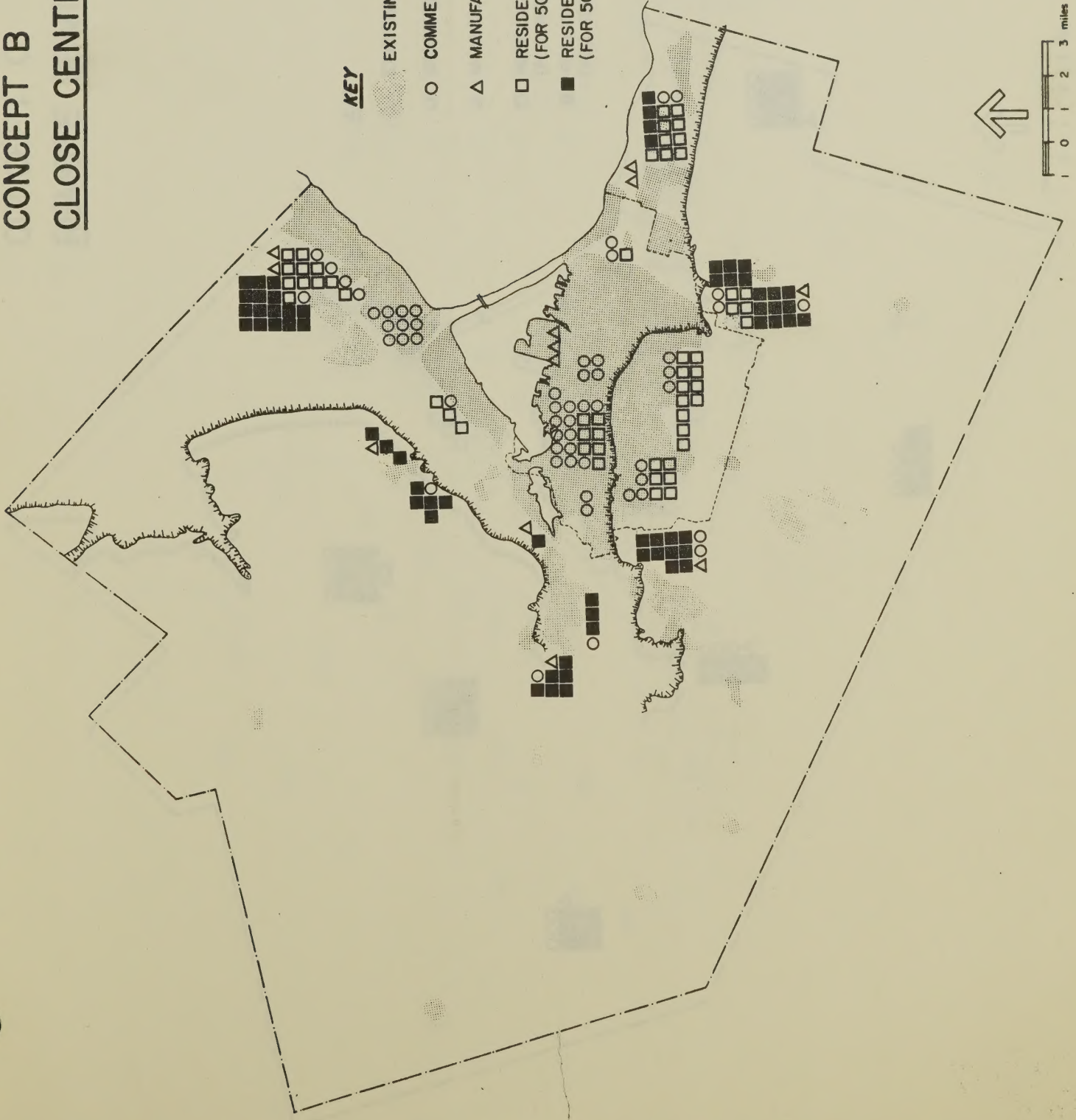
For Residential Development, Net Changes in Dwelling Units are shown.

Because of a Decrease in Occupancy Rates, a Decrease is anticipated in existing Development.

Only Net Changes in Employment are shown

CONCEPT B

CLOSE CENTRES



KEY

EXISTING DEVELOPMENT

○ COMMERCIAL EMPLOYMENT (5000 JOBS)

△ MANUFACTURING EMPLOYMENT (5000 JOBS)

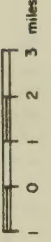
□ RESIDENTIAL DEVELOPMENT COMMITTED (FOR 5000 PEOPLE)

■ RESIDENTIAL DEVELOPMENT FLOATING (FOR 5000 PEOPLE)

NOTE

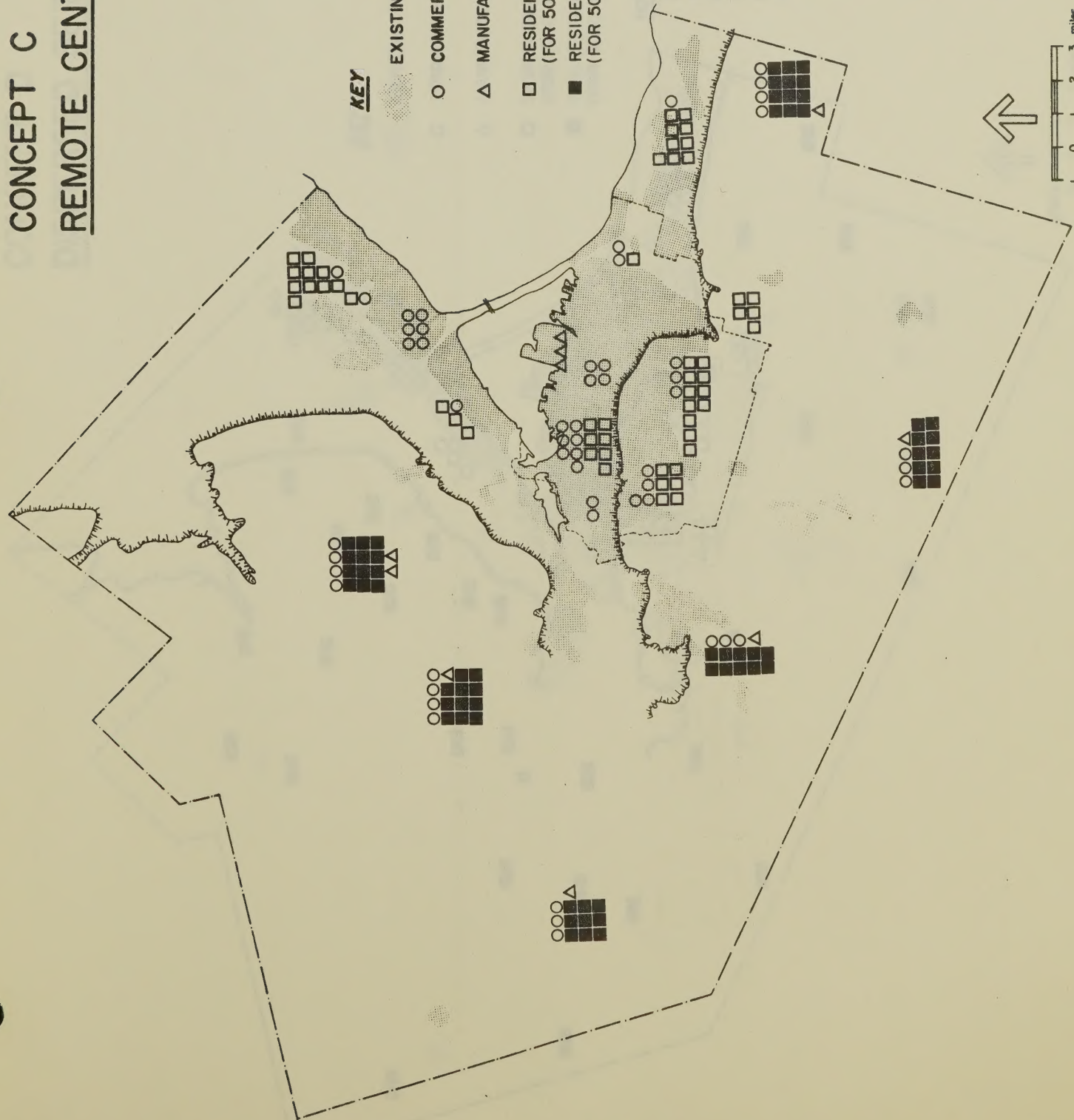
For Residential Development, Net Changes in Dwelling Units are shown. Because of a Decrease in Occupancy Rates, a Decrease is anticipated in existing Development.

Only Net Changes in Employment are shown

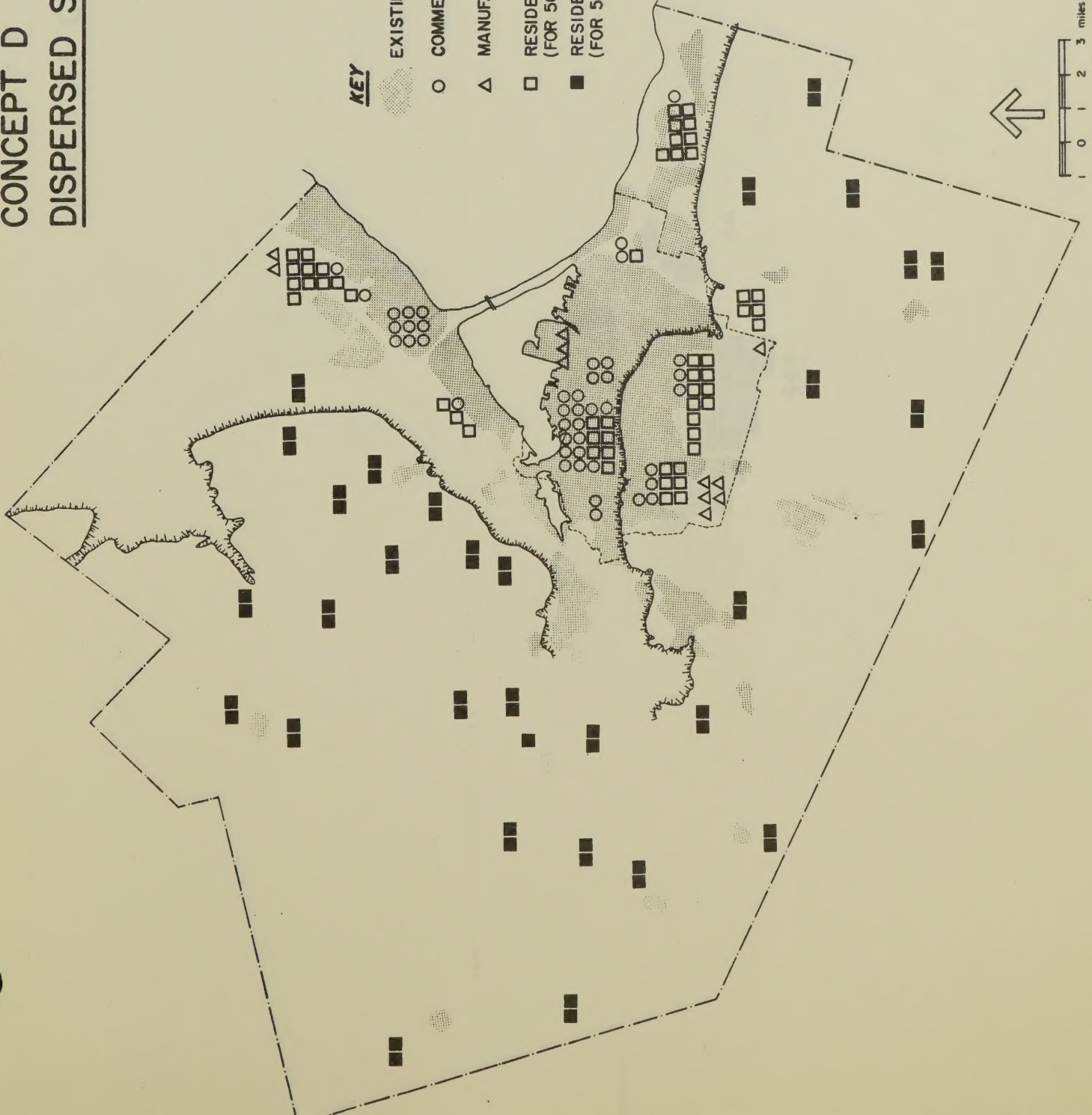


CONCEPT C

REMOTE CENTRES



CONCEPT D DISPERSED SETTLEMENT



KEY

EXISTING DEVELOPMENT

○ COMMERCIAL EMPLOYMENT (5000 JOBS)

△ MANUFACTURING EMPLOYMENT (5000 JOBS)

□ RESIDENTIAL DEVELOPMENT COMMITTED (FOR 5000 PEOPLE)

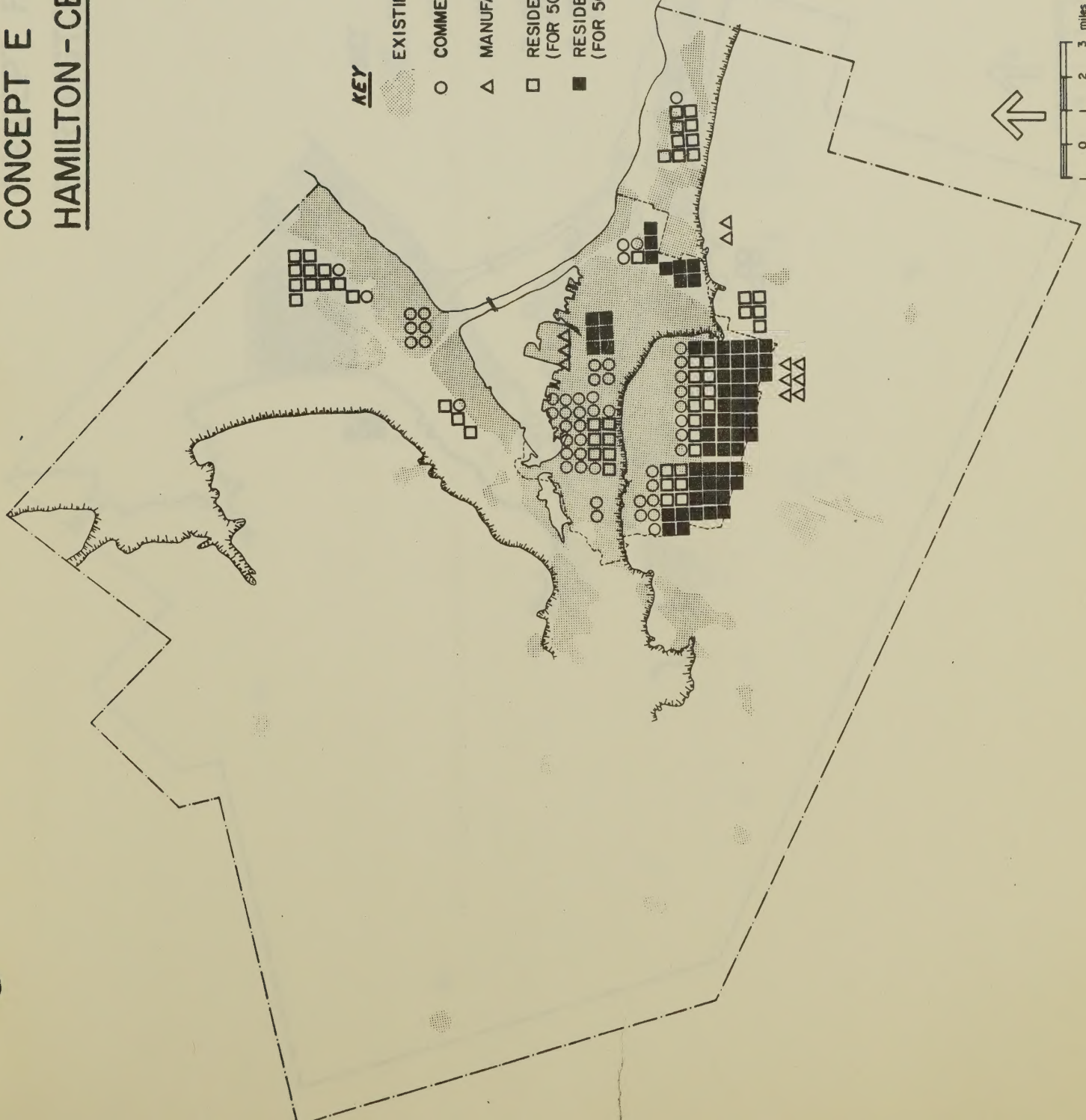
■ RESIDENTIAL DEVELOPMENT FLOATING (FOR 5000 PEOPLE)

NOTE

For Residential Development, Net Changes in Dwelling Units are shown. Because of a Decrease in Occupancy Rates, a Decrease is anticipated in existing Development. Only Net Changes in Employment are shown

CONCEPT E

HAMILTON - CENTRED GROWTH



KEY

EXISTING DEVELOPMENT

○ COMMERCIAL EMPLOYMENT (5000 JOBS)

△ MANUFACTURING EMPLOYMENT (5000 JOBS)

□ RESIDENTIAL DEVELOPMENT COMMITTED (FOR 5000 PEOPLE)

■ RESIDENTIAL DEVELOPMENT FLOATING (FOR 5000 PEOPLE)

NOTE

For Residential Development, Net Changes in Dwelling Units are shown.

Because of a Decrease in Occupancy Rates, a Decrease is anticipated in existing Development.

Only Net Changes in Employment are shown

CONCEPT F BURLINGTON-CENTRED GROWTH

KEY

EXISTING DEVELOPMENT

○ COMMERCIAL EMPLOYMENT (5000 JOBS)

△ MANUFACTURING EMPLOYMENT(5000 JOBS)

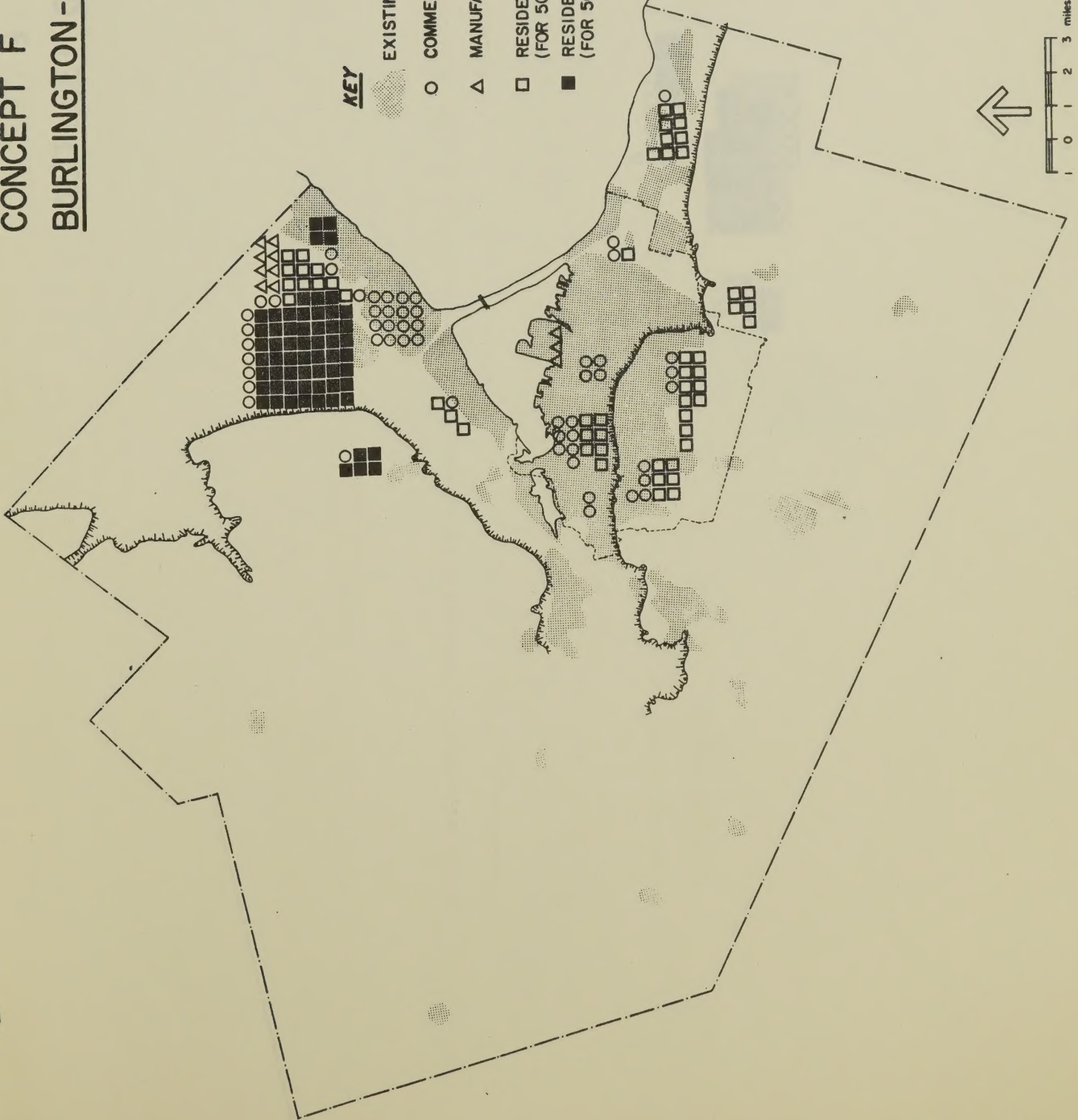
□ RESIDENTIAL DEVELOPMENT COMMITTED (FOR 5000 PEOPLE)

■ RESIDENTIAL DEVELOPMENT FLOATING (FOR 5000 PEOPLE)

NOTE

For Residential Development, Net Changes in Dwelling Units are shown. Because of a Decrease in Occupancy Rates, a Decrease is anticipated in existing Development.

Only Net Changes in Employment are shown



CONCEPT G

SALTFLEET-CENTRED GROWTH

KEY

EXISTING DEVELOPMENT

○ COMMERCIAL EMPLOYMENT (5000 JOBS)

△ MANUFACTURING EMPLOYMENT (5000 JOBS)

□ RESIDENTIAL DEVELOPMENT COMMITTED (FOR 5000 PEOPLE)

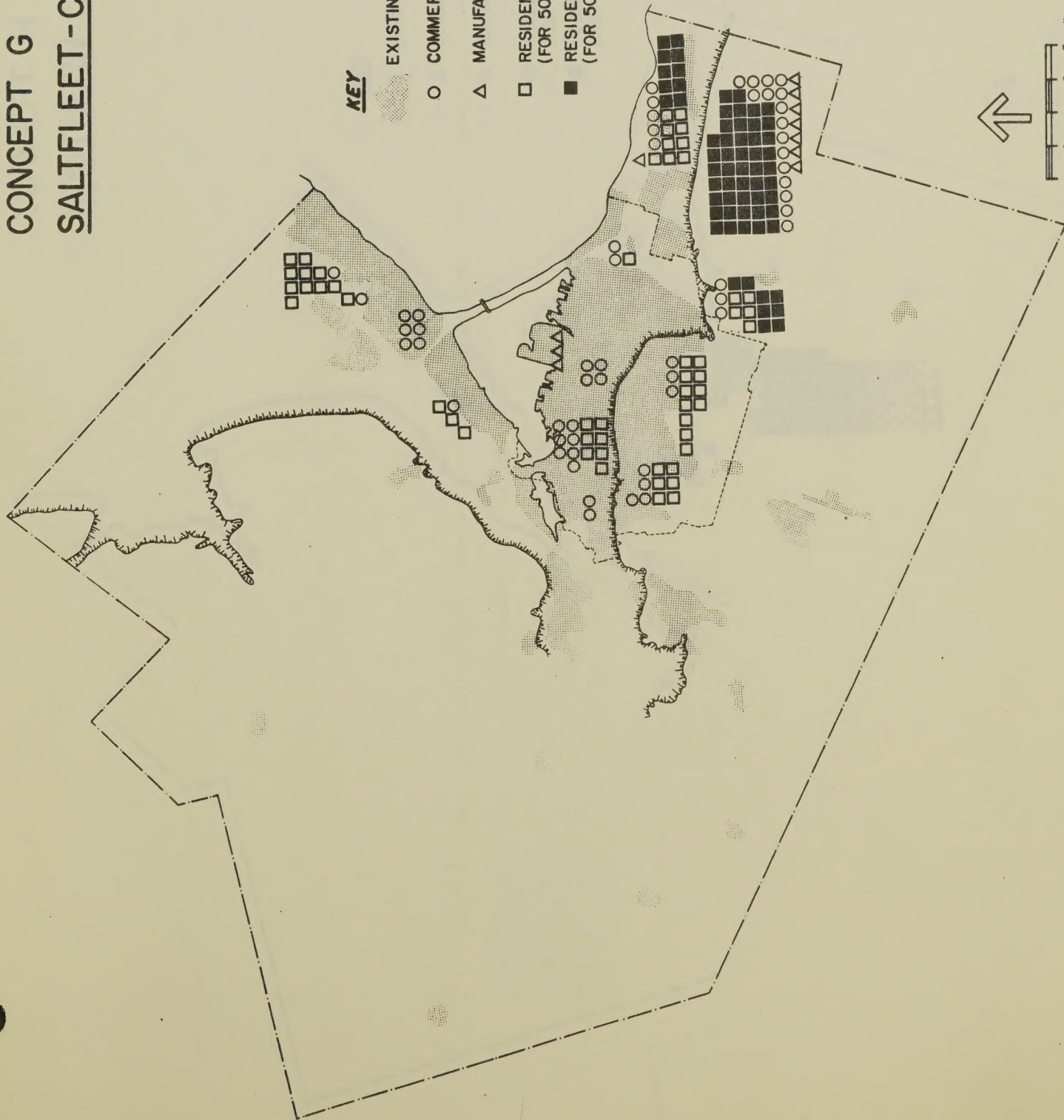
■ RESIDENTIAL DEVELOPMENT FLOATING (FOR 5000 PEOPLE)

NOTE

For Residential Development, Net Changes in Dwelling Units are shown.

Because of a Decrease in Occupancy Rates, a Decrease is anticipated in existing Development.

Only Net Changes in Employment are shown



CONCEPT H SOUTHERN CORRIDOR

KEY

EXISTING DEVELOPMENT

○ COMMERCIAL EMPLOYMENT (5000 JOBS)

△ MANUFACTURING EMPLOYMENT (5000 JOBS)

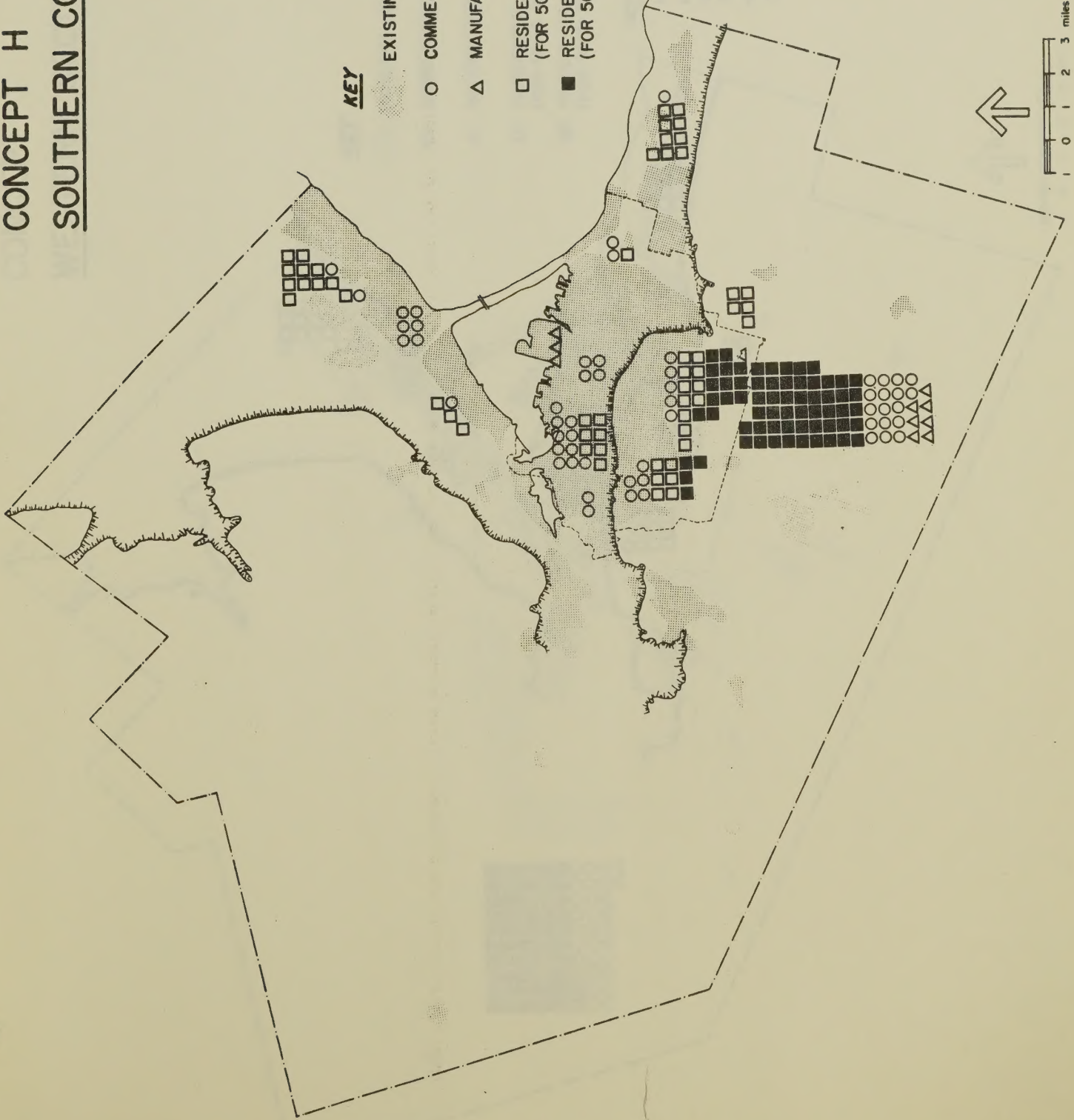
□ RESIDENTIAL DEVELOPMENT COMMITTED (FOR 5000 PEOPLE)

■ RESIDENTIAL DEVELOPMENT FLOATING (FOR 5000 PEOPLE)

NOTE

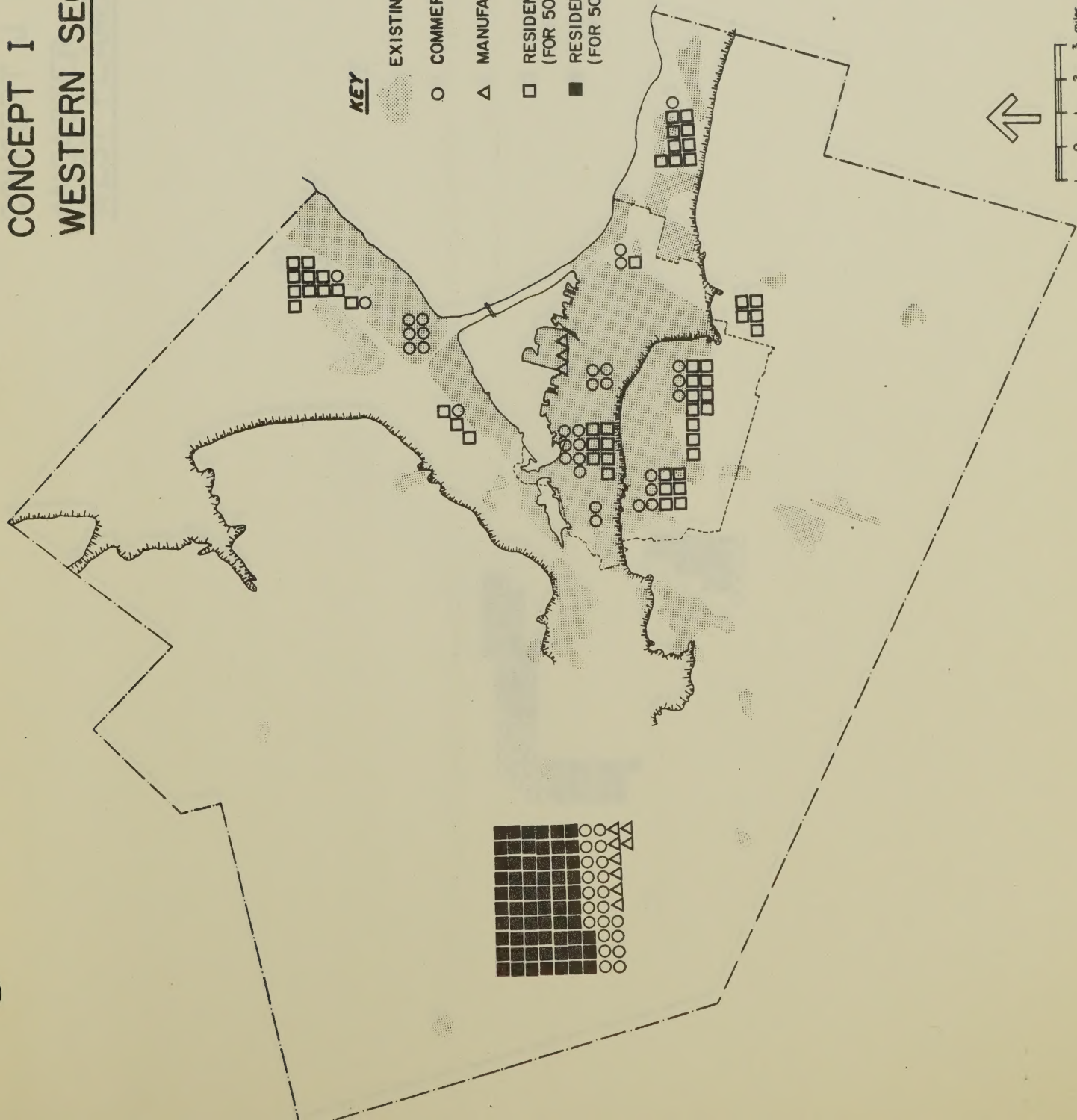
For Residential Development, Net Changes in Dwelling Units are shown. Because of a Decrease in Occupancy Rates, a Decrease is anticipated in existing Development.

Only Net Changes in Employment are shown



CONCEPT I

WESTERN SECTOR



KEY

EXISTING DEVELOPMENT

○ COMMERCIAL EMPLOYMENT (5000 JOBS)

△ MANUFACTURING EMPLOYMENT(5000 JOBS)

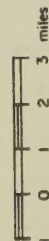
□ RESIDENTIAL DEVELOPMENT COMMITTED (FOR 5000 PEOPLE)

■ RESIDENTIAL DEVELOPMENT FLOATING (FOR 5000 PEOPLE)

NOTE

For Residential Development, Net Changes in Dwelling Units are shown. Because of a Decrease in Occupancy Rates, a Decrease is anticipated in existing Development.

Only Net Changes in Employment are shown



CONCEPT J

ANCASTER- WEST FLAMBOROUGH GROWTH

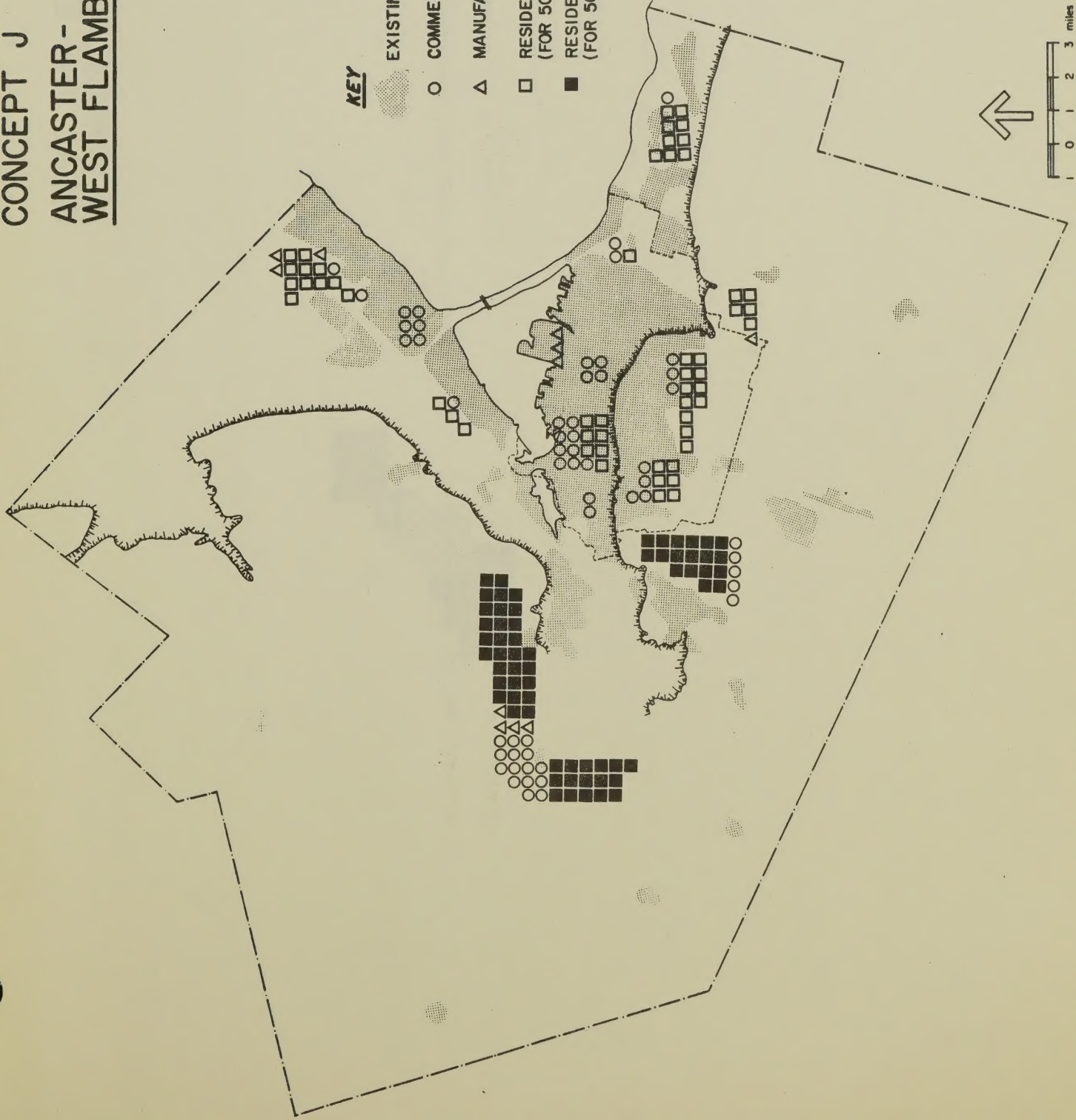
KEY

EXISTING DEVELOPMENT

- COMMERCIAL EMPLOYMENT (5000 JOBS)
- △ MANUFACTURING EMPLOYMENT (5000 JOBS)
- RESIDENTIAL DEVELOPMENT COMMITTED (FOR 5000 PEOPLE)
- RESIDENTIAL DEVELOPMENT FLOATING (FOR 5000 PEOPLE)

NOTE

For Residential Development, Net Changes in Dwelling Units are shown. Because of a Decrease in Occupancy Rates, a Decrease is anticipated in existing Development. Only Net Changes in Employment are shown



CONCEPT K WEST AND EAST FLAMBOROUGH GROWTH

KEY

EXISTING DEVELOPMENT

○ COMMERCIAL EMPLOYMENT (5000 JOBS)

△ MANUFACTURING EMPLOYMENT(5000 JOBS)

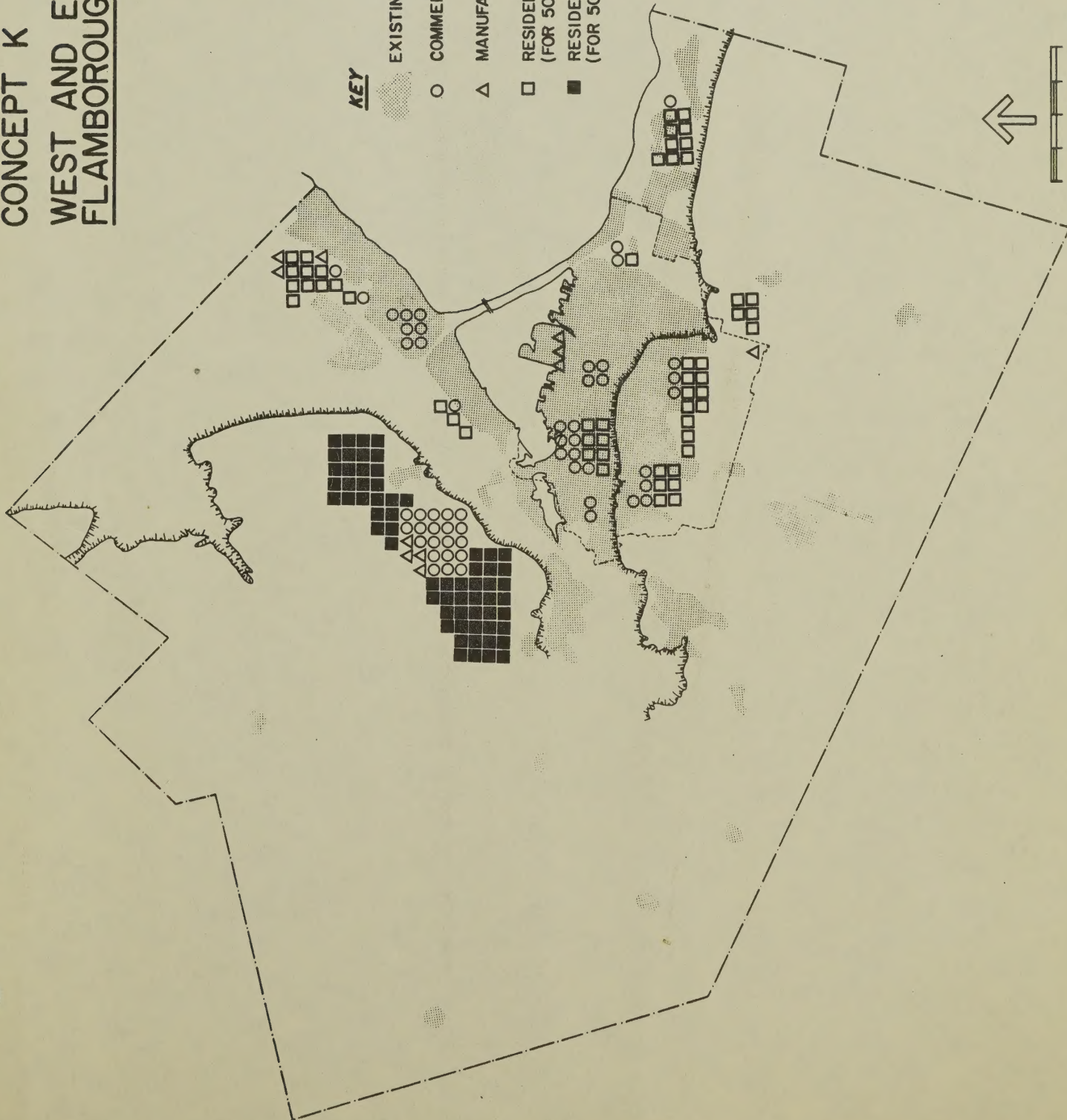
□ RESIDENTIAL DEVELOPMENT COMMITTED
(FOR 5000 PEOPLE)

■ RESIDENTIAL DEVELOPMENT FLOATING
(FOR 5000 PEOPLE)

NOTE

For Residential Development, Net Changes
in Dwelling Units are shown.
Because of a Decrease in Occupancy
Rates, a Decrease is anticipated in
existing Development.

Only Net Changes in Employment are shown



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